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THORACOLYSIS

A CONSERVATIVE AND SELECTIVE OPERATION FOR THE TREATMENT OF CERTAIN CASES OF PULMONARY TUBERCULOSIS

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(WITH SPECIAL PLATE)

The importance of obtaining selective effects with the various forms of collapse therapy now used in the treatment of pulmonary tuberculosis is becoming increasingly apparent. The reasons for this include the necessity for performing minimal interventions on patients in poor condition and the desirability of avoiding the excessive sacrifice of healthy pulmonary tissue. Such an object is, of course, aimed at every day in the employment of artificial pneumothorax and even in such radical measures as the apicolysis of Semb. There are, however, cases with cavity systems limited to the middle or lower zone of one lung in which an artificial pneumothorax is unattainable and where a standard total thoracoplasty seems needlessly drastic both from the point of view of the severity of the operation and the curtailment of lung function; for these, the development of some conservative and selective, yet efficient, operation is desirable.

Developments in Thoracoplasty

In the early days of thoracoplasty favourable results were occasionally obtained with modified rib resections carried out in different parts of the chest wall; but the lack of radiological guidance and the consequent "blind" performance of these measures made them, in the majority of cases, unsatisfactory. Subsequently the standardized paravertebral extrapleural thoracoplasty of Sauerbruch became, and remains, the operation of choice in the treatment of carefully selected unilateral cases of known chronicity. Its application both to less extensive and to more recent lesions was also frequently successful, but as the original conditions for operation were relaxed the incidence of disappointing results increased.

The search for this maximal collapse effect led to the development of paravertebral thoracoplasty and its modern modifications, but meanwhile the therapeutic possibilities of less radical rib resections elsewhere were neglected. However, the evolution of apical thoracoplasty, and its later modifications such as that of Semb, demonstrated the possibility of providing a degree of collapse sufficient to permit of local healing and yet of conserving the function of a maximum amount of healthy lung tissue.

A rib being a curved structure, concave inwards, the removal of even a small portion diminishes the capacity of the thorax, especially in the vicinity. Scar tissue within the lung, adherent to the parietes, subjacent to such a costectomy, is consequently able to retract. Monaldi in 1934 described his favourable experiences with antero-lateral thoracoplasty, and André Maurer (Maurer, Tobé, and Davy, 1935; Maurer and Rautureau, 1936) elaborated this idea still further with an account of his work on "La Thoracectomie Élastique de Détente et d'Attente."

Maurer emphasized the local selective nature of these minimal interventions. Whether any localized rest factor occurred which might initiate "productive" response in a hitherto "exudative" lesion is not known. Monaldi, however, interpreted the absence of breath sounds at the site of operation as evidence of local rest. We consider the time opportune to recall this work and to add our own observations on a small series of similar cases in which it became obvious that healing of the lesions was improbable without some form of collapse therapy. It was considered desirable, after consultation with the physicians responsible for their care, to attempt to promote healing by some more selective and less radical operation than by one of the orthodox forms of thoracoplasty.

We have been concerned with that group of cases in which the disease—usually of a fibro-cavernous type—has mainly involved the middle or lower zone of one lung, and in which it has been impossible to obtain an adequate collapse by artificial pneumothorax, and where healing has not followed diaphragmatic paralysis. For this type of case the alternative to the operation described below was a "total" thoracoplasty with the consequent functional sacrifice of an unduly large area of healthy lung tissue. This was considered an operation of undesirable severity in view of the general condition of the patients.

Treatment by Thoracolysis

Healing was initiated by carefully designed selective resections of relatively small portions of ribs in the vicinity of the lesions—that is, just where relaxation of scar tissue in the underlying lung was required. Thoraco-

lysis was the term originally applied to the operation whereby removal of the precordial ribs, etc., made that part of the chest wall more yielding. We have used the term for the procedure under discussion as it consists essentially in making the chest wall more yielding in some desired situation and so permitting retraction of any scar tissue in the underlying lung. The use of the word has the additional advantage of avoiding confusion between this conservative procedure and the more radical type of operation commonly known as thoracoplasty.

The portions of ribs which it is usually necessary to remove in this operation are easily accessible through direct incisions; little retraction being necessary, tissue trauma is reduced to a minimum. Consequently the operation is one which can be employed for patients in relatively poor general condition. For similar reasons it is a comparatively easy operation to carry out under local anaesthesia, should this be desirable, although for our cases we have not done so. Comparative freedom from marked post-operative disturbances characterized the cases in the series.

Whether or not it is an operation which might be used in the preparation of patients for more serious interventions such as a major thoracoplasty is a matter which requires further experience; but it is obvious that even if it fails to achieve a cure in any particular case there is nothing to preclude a subsequent thoracoplasty of the standard type. It also seems likely that this procedure could be applied with some likelihood of success to those cases where there is a previous contralateral thoracoplasty. It is conceivable that its application to certain apical lesions might prove beneficial. It also seems likely that it might be employed as a bilateral procedure. Accurate radiological determination of the type, extent, and localization of the disease is an essential preliminary to the employment of this method. In addition to the ordinary antero-posterior views, lateral, tomographic, and stereoscopic views are essential. Of these we have found tomographic and lateral the most important.

Rib regeneration after resection occurs as a rule so rapidly that this operation would have little chance of success were it not for the means which are now available to retard it—cauterization of the periosteum with Zenker's solution, with 10 per cent. formol, or by diathermy. We prefer to use strips of gauze soaked in Zenker's solution, placing them in the periosteal bed, from which the rib has been removed, for at least four minutes. In this connexion we are opposed to ablation of the periosteum: ultimately restoration of bony continuity in the chest wall is desirable on mechanical grounds. For the same reason—so that localized paradoxical movement may be prevented, and so that regeneration of the ribs may occur with the greatest possible diminution of their internal concavity—some form of pad may be applied direct over the area concerned, until such time as regeneration of the ribs is completed.

If there is clinical and radiological evidence that the operation has favourably influenced the lesion but has not healed it by the time the ribs have regenerated, the operation—which itself may have been done in stages adapted to the condition of the patient—may be repeated, the chest wall being made yielding once again, so that the underlying scar tissue may further retract.

The clinical and radiological picture after operation was that of progressive improvement, such as is seen with cases in which other forms of collapse therapy have been successfully employed, the pulmonary lesions—as discernible by radiographs—disappearing as the general condition improved. As this improvement took place the sputum diminished in quantity, becoming free from tubercle bacilli and ultimately ceasing entirely.

Case I

A man aged 21 was admitted to the sanatorium in August, 1935, having suffered from pulmonary tuberculosis for three years following an attack of influenza. He had twice had periods of ordinary sanatorium treatment elsewhere—one for eighteen months and again for six months—without material improvement. On two occasions there had been a haemoptysis of 3 to 4 oz.

On admission the general condition was fair, the weight being 9 st. 12 lb. and the blood sedimentation rate 17. Tubercle bacilli were present in the sputum. *X*-ray examination of the chest revealed slight, probably quiescent, infiltration at the right apex, and on the left side a considerable infiltration and mottling of the infraclavicular and middle zones. Artificial pneumothorax could not be induced. The left phrenic nerve was effectively crushed, but despite this and three months' "bed-rest" the weight remained stationary, and the sputum (2 oz. a day) remained positive. Moist sounds were still audible in the left lung. Tomographic examination revealed the presence of a series of cavities in the postero-lateral part of the middle zone of the left lung (Fig. 1, Special Plate). Although the temperature was normal, the pulse rate—absolute rest—ranged between 88 and 104. The blood sedimentation rate still remained low—14—and the vital capacity was 2,860 c.cm.

Thoracolysis was advised, and in May, 1936, under general anaesthesia (oxygen and ether), posterior portions of ribs four to eight were removed from the left side, the periosteum being cauterized with Zenker's solution. An uncomplicated convalescence was marked by little appreciable post-operative disturbance. Subsequent tomograms showed a progressive fibrosis and pleural thickening with contraction of the cavities, while the sputum diminished to half a drachm daily, but remained positive. Accordingly, in October, 1936, the diaphragm having become reactive, the left phrenic nerve was again crushed. In November, 1936, under general anaesthesia (oxygen and ether), the regenerated portions of the fourth, fifth, sixth, and seventh left ribs were again removed and the periosteum cauterized with Zenker's solution.

Convalescence was again smooth, and three months later the sputum became negative not only to ordinary examination but also on culture and guinea-pig inoculations. Tomographic (Fig. 2) and radiographic examination (Fig. 3) in February, 1938, indicated that healing had occurred with a minimal loss of functioning lung tissue. This satisfactory progress was maintained, and in September, 1938, the general condition was excellent, the weight 12 st., the B.S.R. normal, and the vital capacity 2,300 c.cm. The patient was almost free from sputum, which was persistently negative. He was able to work regularly for four and a half hours daily in the wood-graining department of the settlement.

Case II

This patient, a miner aged 32, was admitted to the sanatorium in September, 1936. He had suffered from cough and sputum for five years; haemoptysis had occurred four years previously. He had been discharged from the sanatorium only three months previously, in an apparently quiescent state and with negative sputum, following a nine-months period of routine sanatorium treatment.

On admission the general condition was poor; the weight 10 st. 7 lb.; tubercle bacilli were present in the sputum; there was thickening of both vocal cords; the pulse rate ranged between 70 and 90 per minute, and the temperature between 97° and 98.6° F. The *x*-ray examination showed an extensive infiltration of the lower part of the right lung, in which there was a fair-sized cavity (Fig. 8).

The right phrenic nerve was crushed on November 17, 1936, and a month later, under general anaesthesia (oxygen and ether), the postero-lateral segments of ribs five to nine on the right side were removed, and the periosteum cauterized with Zenker's solution. There was no post-operative disturbance, and he continued to improve with routine bed rest and sanatorium treatment until July, 1937, when he was discharged. At that time, although he had a trace of sputum, no tubercle bacilli could be found in it, his laryngitis was quiescent, the temperature range normal, and an *x*-ray examination indicated that the lung condition had apparently healed. Since December, 1937, he has worked in the sectional building workshop of the settlement, and apart from an occasional cough he has remained free from symptoms and has gained 12 lb. in weight. In July, 1938, an *x*-ray examination showed that no relapse had occurred (Fig. 9).

Case III

A man aged 20, a factory hand, was admitted to the sanatorium in October, 1936, with a history of pleurisy dating from the previous August. The temperature varied between 97.4° and 99.4° F. He weighed 7 st. 9 lb., and the pulse rate was between 80 and 100. Although there was only a trace of sputum, it contained tubercle bacilli.

X-ray examination showed diffuse infiltration of the lower and middle zones of the left lung, with a cavity in the vicinity of the hilus (Fig. 13). The phrenic nerve was crushed on December 12, 1936, but although the patient was kept completely at rest the lesion had not healed four months later. Accordingly, on April 6, 1937, under general anaesthesia (oxygen and ether), postero-lateral portions of ribs four to six were removed in the region of the cavity, and the periosteum was cauterized with Zenker's solution. There was no post-operative disturbance, and an uneventful convalescence resulted, the patient being discharged in February, 1938. At that time the temperature and pulse rate were normal, the B.S.R. was 4.5, the weight 8 st. 10½ lb., and the sputum negative on direct examination. The cavity is no longer visible in the radiograph (Fig. 14), and the patient, whose health is well maintained, has been working for three months as a machinist in a hosiery factory.

Case IV

A girl aged 18 was admitted to the sanatorium in July, 1936, after an attack of haemoptysis. Three years previously she had suffered from pneumonia. The sputum contained tubercle bacilli. *X*-ray examination showed diffuse infiltration in the lower zone of the right lung, but no definite cavity. The general condition improved on routine sanatorium treatment and she was discharged with a negative sputum in January, 1937; but in April of that year, following a cold, relapse occurred. At this stage there was radiological evidence of a diffuse infiltration in the lower zone of the right lung with a small cavity. A pneumothorax could not be induced. The right phrenic nerve was crushed in April, 1937, but the cavity persisted and thoracolysis was decided upon.

Accordingly, on October 10, 1937, segments of the sixth, seventh, and eighth ribs were removed and the periosteum cauterized with Zenker's fluid. There was some pyrexia following operation, and on two occasions fluid was aspirated from the right pleura; it was not until December 19, 1937, that the temperature and pulse returned to normal. The patient has improved since operation, gaining about 2 st. in weight, and is working as a sanatorium orderly. The sputum is negative.

Case V

A woman aged 31 was admitted to the sanatorium on November 3, 1936, with a history of cough and sputum dating from the previous August. Neither temperature nor pulse rate was elevated. The sputum contained tubercle bacilli. Despite routine sanatorium treatment the condition did not greatly improve, the sputum remaining positive. *X*-ray examination showed diffuse infiltration in the middle zone of the left lung, and with a lateral view a small cavity was seen near the hilus.

The phrenic nerve was crushed in August, 1937, but the sputum remained positive. It was decided to perform a thoracolysis. Accordingly, on November 23, 1937, under general anaesthesia (oxygen and ether), segments of the sixth and seventh ribs were removed. Unfortunately the lung was not completely adherent in the area chosen for resection, and during the operation a free pleural space was entered; hence this was a case where thoracolysis should probably not have been employed. There was no immediate distress, but a large effusion rapidly formed, and with the appearance of a secondary pyogenic infection of the effusion the patient became gravely ill. For a time the empyema was treated by aspiration, but on January 1, 1938, a rib resection and drainage had to be done. Subsequently a paravertebral thoracoplasty (ribs one to nine) was carried out, and the patient is in good general condition. Although a negative sputum has been repeatedly recorded since operation, on a recent occasion (October, 1938) it was positive.

Case VI

This patient, a boy aged 16, is a member of a family with several sufferers from open tuberculosis. Tuberculous glands were excised at the age of 9, and six years later he had been ill with dry pleurisy. A year before admission, occasional "streaking" of the sputum having occurred, he was taken into an institution, but failed to improve, and was transferred to a sanatorium.

Ordinary radiographic and tomographic examination revealed extensive infiltrative disease with cavitation of the lower middle zone of the right lung (Figs. 4 and 5). Artificial pneumothorax could not be induced as the right phrenic nerve was crushed. No material improvement occurred with sanatorium treatment, and thoracolysis was decided upon. At that time, five months later, not only was his condition poor, his temperature between 99° and 100° F. each evening, and his pulse rate correspondingly elevated, but his weight was only 7 st. 9 lb. About ½ oz. of greenish pus was coughed up daily. The vital capacity was only 2,100 c.cm., but the B.S.R. had improved from 23 to 12. Tomography had localized the cavity as being close to the ninth right costotransverse articulation. Accordingly, under local anaesthesia—supplemented by intravenous evipan at the moment of cutting the bone—two and a half inches of the ninth rib and one inch of the eighth rib were resected periosteally, and Zenker's solution applied for five minutes to the periosteum.

Convalescence was uneventful. The phrenic nerve was again crushed three weeks after the thoracolysis, and the patient has been kept at rest since. Marked improvement in the general condition has occurred, the pulse and temperature having become normal, and the sputum having almost disappeared and having become negative both to culture and to guinea-pig inoculation. The weight has increased by 28 lb., the B.S.R. is 7, and the vital capacity has actually increased to 2,800 c.cm. Radiographs and tomographs six months after operation demonstrated that healing had occurred (Figs. 6 and 7).

Case VII

This patient was a motor mechanic aged 29. Five years previous to admission to the sanatorium in November, 1937, he had pneumonia and pleurisy, but made a good recovery and remained well for three years. At the end of that time he developed a cough that has persisted, accompanied by a small amount of sputum. He was in another institution for a year. During that time, as an artificial pneumothorax could not be induced, the left phrenic nerve was avulsed (May, 1936). Haemoptysis had occurred on one occasion, about a year previously.

The general condition was fair; temperature and pulse rate were not elevated. The weight, which on admission was 9 st. 4½ lb., fell slightly in five months to 8 st. 10 lb. About one ounce of sputum containing tubercle bacilli was

expectorated daily. *X*-ray examination revealed cavitation in the left lower lobe—near its upper part posteriorly. Bed rest and general treatment failed to produce any improvement; indeed, the *x*-ray appearances after three months were, if anything, rather worse (Figs. 10 and 11). Accordingly thoracolysis was advised. On March 31, 1938, under general anaesthesia (intratracheal oxygen and chloroform), the posterior ends of ribs six to ten were resected subperiosteally and their periosteal beds cauterized with Zenker's fluid. The immediate post-operative period was uneventful.

It was recorded in the notes on May 12, 1938, that since operation the patient had done amazingly well: the sputum had decreased from one ounce to three spots daily, and on that day he had had none for the first time for years. *X*-ray examination showed the cavity diminishing in size. A few bacilli were found in one specimen of sputum about the middle of September, after it had been repeatedly negative for about two months.

On October 31, 1938, the general condition was excellent; a slight but steady increase in weight having taken place since August, the weight now was 10 st. 7 lb., and the sputum was so scanty that a specimen obtained with the utmost difficulty was negative. The *x*-ray appearances are correspondingly improved and suggest that healing has occurred (Fig. 12). The patient is now being allowed up, and sputum is negative on culture and animal inoculation.

Case VIII

An upholsterer aged 25 was admitted to the sanatorium on November 16, 1937, nine weeks after the first onset of his illness, which was regarded as a bronchopneumonia of the right base.

Slight improvement followed routine sanatorium treatment, but in February, 1938, a large basal cavity was seen in the *x*-ray picture of the right lung. Accordingly an artificial pneumothorax was induced, but as this was inadequate it was supplemented on April 6, 1938, by crushing of the right phrenic nerve, and the cavity became a little smaller. On June 30, 1938, there was still a little sputum containing tubercle bacilli, and an occasional slight elevation of temperature to 98.8° F. The pulse ranged between 75 and 100 per minute and the weight was 9 st. 10 lb. The cavity appeared in the *x*-ray picture to have increased (Figs. 15 and 16). Accordingly thoracolysis was advised. On July 7, 1938, under general anaesthesia (intratracheal oxygen and chloroform), posterior portions of ribs six to eleven were resected subperiosteally and their periosteum was cauterized with Zenker's fluid. The immediate post-operative period was marked by an elevation of the temperature, starting some days after the operation and persisting for a few days until the contents of a large haematoma were expelled from the wound during a fit of coughing.

The general condition steadily improved; the sputum, becoming negative, ceased, and *x*-ray examinations showed the cavity to be diminishing (Fig. 17) and then finally to disappear (Fig. 18). Although there was a slight loss of weight immediately after operation, three months later the patient was more than a stone heavier than immediately before it, and he was being allowed up for about four hours daily. The sputum is negative on culture and animal inoculation.

Summary

Attention is drawn to the possibility of treating successfully certain cases of pulmonary tuberculosis, especially those in which a middle or lower zone of one lung is involved by fibro-cavernous disease, in which an adequate artificial pneumothorax cannot be established, and in which phrenic paralysis fails to effect healing.

The underlying principles of the method and the possibility of extending its scope are referred to, and a series of eight cases in which it was employed with success are recorded.

It is possible, with the operation described and in suitable cases, to obtain healing with the minimum diminution in the functional capacity of the chest and often even with an active diaphragm.

We wish to acknowledge our indebtedness to our colleagues, the medical superintendents and their assistants at the sanatoria—Preston Hall, Ransom, and Wooley—where these cases were treated, for their co-operation in the selection and post-operative management of these, as well as for their interest in the problems involved and help in providing access to their records. We are similarly grateful to Dr. Philip Ayre and Dr. J. K. Hasler for their skilled administration of the anaesthetics required in these cases.

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CRITICAL REVIEW OF EXTRAPLEURAL PNEUMOTHORAX

BY

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In 1929—at first without knowledge of the case treated by Meyer fifteen years previously—I used extrapleural pneumothorax for a considerable number of patients, and have since reported thereon (Nissen, 1931, 1932, 1933, and 1937). Numerous publications during the last two years, personal communications from surgeons and tuberculosis doctors, and my own observations while visiting clinics and sanatoria show that extrapleural pneumothorax has become a very frequently used method. I was the first to reintroduce this treatment, and now, after nine years' experience of it, think that a stand should be made against the present tendency to extend the indications for its use. I will not go into these in detail now, but will first discuss the disadvantages and complications of extrapleural pneumothorax. The operation is an adventure into the unknown—to a lesser extent the same objection may be raised against the classical artificial pneumothorax, and unexpected complications may disturb the placid course of the medical treatment of phthisis—but, as will be shown, in extrapleural pneumothorax the mechanical conditions created at operation are immediately subject to modifications, for the most part beyond our control.

Its Disadvantages and Complications

EMPHYSEMA OF THE MEDIASTINUM

One possible complication is that after completion of the operation air escapes as a result of bouts of coughing, causing general emphysema and threatening to involve the mediastinum. In one of my cases a very serious emphysema of the mediastinum occurred the night after the operation, and I believe that only incision into the jugular notch prevented a fatal outcome.

DIFFICULTY IN REFILLING

When air has escaped from the extrapleural pneumothorax it may be difficult to find the right tissue space again in attempting to refill. It is true that the exudate usually gives the right clue. But everyone with experience of artificial pneumothorax refills realizes how awkward it is to introduce air without knowing just where one is. There is no manometric indication, for after extrapleural pneumothorax the pressure oscillates round about zero.

HAEMORRHAGE

A slight haemorrhage is hardly ever absent. Its clinical and prognostic significance is the same as that of an exudate (see below). A big haemorrhage can endanger life simply as a result of the quantity of blood lost. I have seen a patient—it is true with a complete extrapleural pneumothorax—with such a high degree of anaemia that he recovered only with the help of several large blood transfusions. These massive secondary haemorrhages, which occur in about 10 to 15 per cent. of cases, cannot be avoided by careful haemostasis during the operation, either by diathermy coagulation or, as carried out by Churchill in Boston, by silver clips. Most of the secondary haemorrhages arise only some hours or even days after operation. In one of my cases a very large haemorrhage developed the third day after operation. The cause of this late haemorrhage will not be discussed here. The mechanical consequences of haemorrhage can be no less harmful than the biological. Unless the parietal pleura and the fascia endothoracica are firmly adherent, then enlargement of the extrapleural cavity invariably follows. With that, in many cases, the desirable selective action of extrapleural pneumothorax is lost. It is obvious that a haematoma, especially on the right side, may exert unpleasant pressure on the heart. Aspiration of the extravasated blood is in general contraindicated, for this is almost always followed by renewed bleeding.

THE EXUDATE

The exudate in extrapleural is similar to the early exudate in intrapleural pneumothorax: some writers declare it occurs in 100 per cent. of cases, others only in 17 per cent. or even 5 per cent. I have in practice always observed exudate in extrapleural pneumothorax—insignificant in a very few cases and considerable in the great majority. There is the risk that each exudate, small as well as large, may become infected in the extrapleural cavity, and infections are frequent—considerably more common, for example, than after plombage: it must not be forgotten that occasional infection of the bed of the plombe was one of the chief arguments against plombage.

The outlook of the conservative treatment of empyema in extrapleural pneumothorax is less favourable than it is in intrapleural empyema: this applies equally to septic empyemata as to tuberculous ones. The connective tissue lining of the cavity of the extrapleural pneumothorax has not the resorptive power of the pleura. The picture of septic suppuration—happily rare—resembles in its severity that of the empyema familiar when adhesions were treated with high-pressure pneumothorax. The fulminating inflammation spreads in the extrapleural space (occasionally also to the mediastinum). The prognosis is very bad. In mild forms of suppuration the cavity must be drained when the condition cannot be dealt with by puncture and irrigation. Usually in these cases induration of the connective tissue of the wall of the cavity is favourable to its healing. A voluminous fibrothorax is formed. The proliferating connective tissue also envelops the cavity wall and prevents its re-expansion. I will refer later to the therapeutic significance of fibrothorax in extrapleural pneumothorax.

If the drained abscess cavity does not close spontaneously, then it must be treated in the same way as a persisting cavity in an intrapleural empyema: first an extrapleural thoracoplasty is done; later, if necessary, this is followed by an intrapleural (Schede's) operation. It may be difficult to decide on the right moment to do a thoracoplasty: there is a tendency to wait too long—until the patient, exhausted by the suppuration, is unable to stand the operation. Also, the technical procedure needed to obliterate the space demands much surgical experience; occasionally it is necessary to fill with muscle the cavity which has remained in spite of rib resection.

One can thus see that the operative treatment of the complications of extrapleural pneumothorax demands essentially more general surgical knowledge than the performance of the initial operation. Extrapleural pneumothorax can be carried out with little technical equipment and little technical experience and ability. The long-winded literary expositions of individual tuberculosis surgeons who busy themselves with operative tactics give, it is true, the opposite impression.

PERFORATION OF CAVITY

As with each pneumolysis, so also in extrapleural pneumothorax there is the obvious risk that careless or clumsy manipulation may rupture a peripheral cavity which has already broken into the inner layer of the chest wall. Suture of the tear is generally not possible; even if this can be done it usually separates after twenty-four to forty-eight hours. Tamponage has no effect on the catastrophic outcome. Only active permanent collapse by means of extrapleural thoracoplasty (apicolysis) with subsequent tamponage of the tear in the collapsed cavity will be successful.

It is otherwise with the late perforation of cavities which have been compressed by extrapleural pneumothorax. This is seldom acute; it more often develops gradually, and it is then usually difficult to determine whether an already existing suppuration in the extrapleural cavity has prepared the way for the rupture or whether, rather, septic infection of the extrapleural pneumothorax is the result of perforation of a cavity. Once it is certain that there is a perforation the thoracoplasty which has been described must be carried out immediately if the strength of the patient permits this. We were able to restore two patients in this way. It is noteworthy that one of these cases perforated in the third month of treatment.

MAINTENANCE OF EXTRAPLEURAL PNEUMOTHORAX

Even if none of the previously described complications arises—that is, if a more or less dry cavity exists—it can in no way be assured that regular refills will maintain the cavity at the required size. In this connexion we must be clear that connective tissue and not endothelium lines the cavity. The opposite view, held by Schmidt, is erroneous. Macroscopically the lining of the cavity does indeed give the impression of a smooth endothelium. Observation of the envelope of tissue round a plombe of paraffin made us aware that this conclusion was wrong. In both, one finds on microscopical examination only connective tissue cells as a surface covering.

The tendency to obliteration is very strong. This need not necessarily be clinically disadvantageous. I have already referred to the favourable action of a fibrothorax, which takes the place of the extrapleural pneumothorax. We can also sometimes observe this massive formation of connective tissue in an extrapleural pneumothorax which is aseptic and free, or almost free, of exudate. Fibrosis obtains in spite of all attempts at refilling; the cavity disappears, sometimes after four months and sometimes considerably later (nine months). One should, however, only discontinue these attempts when the clinical picture and *x*-ray examination clearly show the development of a compact fibrothorax, with disappearance of the cavity. Otherwise, as soon as it is confirmed that obliteration of

the cavity has begun, the air must be replaced by oil. This "anti-symphysis" oleothorax sometimes works, preventing the further shrinking in of the cavity. If it does not, then one must try to establish collapse by means of thoracoplasty.

Conclusions

Extrapleural pneumothorax is an "easy" operation for both doctor and patient. But this statement must be qualified by pointing out that a variety of complications are possible. The "optimistic" literature at present available is based on but brief experience. Having had nine years' experience, I believe that much greater caution must be urged. *Thoracoplasty and its various modifications and plombage are superior to extrapleural pneumothorax.* When it is possible to apply them, extrapleural pneumothorax should not be thought of. It should only be considered when pneumothorax fails as a result of widespread adhesion, when the extent of this does not allow of plombage, or when the general condition or the state of the other lung does not permit of a thoracoplasty. That was approximately the conclusion I reached in my first publication in 1931, and after many digressions I have now returned to it. Within these narrow indications extrapleural pneumothorax is the only possible method of collapse therapy. It may be employed even though one cannot expect much from it. But the rare permanent results gain in value when one considers the hopeless fate of the patients for whom this form of therapy is recommended.

A doubtful indication is in recent cavities with delicate pleural adhesions, where a thoracoplasty seems unsuitable on account of the risk of mediastinal flutter, and a plombe because of the likelihood of its slipping down. These cases are relatively rare. We now perform extrapleural pneumothorax for them only so long as we can assume a sufficient degree of pleural thickening. Then we replace it by thoracoplasty (apical thoracoplasty). Extrapleural pneumothorax here plays the part of a preparation for rib resection.

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The following medical promotions in and appointments to the Venerable Order of the Hospital of St. John of Jerusalem were announced in the *London Gazette* of January 3: as Knight, Dr. L. W. Dryland; as Commanders, Dr. A. G. Osborn (since deceased), Colonel G. C. E. Simpson, O.B.E., T.D., Hon. W. H. Kauntze, C.M.G., M.B.E., M.D., Dr. A. G. S. Broughton, Lieutenant-Colonel W. Blackwood, D.S.O., Captain F. H. R. Heath; as Officers, Dr. J. A. Carman, Dr. J. A. Kennedy, Dr. H. M. Palmer, Dr. D. E. Brown, M.B.E., Lieutenant-Colonel W. R. Stewart, C.I.E., I.M.S., Colonel H. Stott, O.B.E., I.M.S., Colonel W. Archibald, Dr. F. W. M. Palmer, Colonel C. H. S. Redmond, T.D., A.M.S., Lieutenant-Colonel F. W. W. Dawson, Dr. R. Y. Stones, O.B.E., *M.C.*, Dr. J. B. Mitchell, O.B.E., Captain D. C. Low, Lieutenant-Colonel G. C. Lawson, Dr. Sybil C. Bevan; as Serving Brothers, Dr. W. F. J. Whitley, Dr. C. R. Corfield, Dr. R. W. Jubb, Captain R. P. Cormack, Dr. Francis Liddell, Dr. W. B. Grant, Dr. W. Wood, Dr. J. A. Hendry, Dr. J. B. Aickin, Dr. S. M. Vassallo, Dr. D. G. Hunter; as Associate Serving Brother, Mr. D. D. Variava, O.B.E.; as Serving Sisters, Dr. Alice M. Benham, Dr. Gladys E. Wilkinson, Dr. Mildred M. E. Y. Edwards.

ANAESTHESIA IN THORACIC SURGERY

BY

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In no other branch of surgery is the anaesthetist faced with such difficulties as in thoracic operations: each operation presents one or more problems that are found in these cases alone. The procedures are not only extensive, but they take a long time and cause a good deal of haemorrhage and shock. Added to these features is the ever-present question of the correct method of dealing with a case that has sputum in any quantity.

Beyond the technical difficulties, there is the fact that the surgeon is practically always operating on a patient with a disease of long standing and of a nature which causes a degree of toxic absorption.

Preparation of Patient

Generally speaking, the preparation of the patient is just the same as for any other operation of any magnitude. Rest, increased fluids, and glucose, with attention to oral hygiene and the intestinal tract, are essential, and should be carried out as thoroughly as possible, provided the patient will not suffer by any delay. Where there is any sputum a course of postural drainage is invaluable in reducing the quantity at the time of operation, and in the intrapleural operations an artificial pneumothorax is necessary on the affected side, and should be induced some three or four days before operation. Premedication should be of the lightest. Perhaps the most useful combination is omnopon 1/3 grain and scopolamine 1/150 grain, given three-quarters of an hour before operation. No drug should be used that will diminish the cough reflex to any extent. Basal narcosis may suit nervous patients, but drugs of transient action that are quickly and easily detoxicated should be employed. Evipan and sodium pentothal are the most useful in this group, and of the two sodium pentothal is probably the better. Though avertin is an excellent basal narcotic, its action is prolonged, and where a quick return to consciousness is desirable, as in these cases, it is to be avoided.

Local Anaesthesia

This is used extensively on the Continent, but comparatively rarely in the British Isles. The infiltration of the area to be operated on is carried out with different preparations of novocain in varying strengths, but where an experienced anaesthetist is available there is no doubt that other methods are preferable. Infiltration takes a long time and needs multiple skin punctures. Surgeons in this country seem to prefer, where major operations are concerned, to operate on an unconscious patient—and, moreover, the average British patient would rather be unconscious of the operation if it is to take any length of time. A number of operations can, however, be carried out easily and successfully by this method. These will be classified later.

Spinal Analgesia

High spinal analgesia has proved excellent in lobectomy and thoracoplasty. One of the first papers on this subject was published by Shields (1935) of Toronto, and it

describes a number of cases done under spinal procaine. Shields found that local infiltration was unsatisfactory, for various reasons already mentioned, and that cyanosis and trouble with sputum were a drawback in nitrous-oxide-oxygen anaesthesia. These facts led him to try high spinal analgesia. He chose the space between L. 3 and 4 as the site of injection and, using procaine as his agent, obtained the correct level of anaesthesia by using 200 mg. dissolved in 10 c.cm. of the patient's cerebrospinal fluid. The injection was made with the patient lying on his affected side. The solution was run in slowly, taking two seconds for each cubic centimetre. This usually gave him anaesthesia to the level of the fourth rib. In some cases it had to be supplemented by local infiltration in the region of the upper end of the incision. Nearly all the cases were thoracoplasties. He reported very little fall in blood pressure—much less than in upper abdominal surgery under spinal anaesthesia. Ephedrine ¼ grain was injected intramuscularly at the time of the introduction of the spinal needle.

Magill (1936a) describes a modification of the Howard Jones technique, using procaine 1 in 1,500, and reports very favourably on the method. The technique for injection was as described by Howard Jones (1930), and then, with the patient in the ventral position, the head and feet were dropped so that the highest point was about the region of the third dorsal vertebra. This posture was maintained for six minutes. In a series of cases in which the method was carried out by myself the patient was kept in that position for at least ten minutes. After this he was put into a slight Trendelenburg position, and then placed on his side ready for operation. A further modification was described by Harris and Rink (1937). In their series of cases the injection was made according to the Howard Jones technique, with the affected side uppermost. The shoulders were kept slightly higher than the pelvis, with the head dropped so that the highest point was as before, in the region of the third dorsal vertebra. This method presents one or two advantages: first, it is not necessary to turn the patient; secondly, a unilateral analgesia is produced, leaving the accessory muscles of respiration unimpaired on the sound side; thirdly, there seems to be even less tendency for the blood pressure to fall in these cases.

Yet another technique is used; this is a modification of that described by Etherington-Wilson (1934). The patient sits up on the table and 14 to 16 c.cm. of percaine solution 1 in 1,500 is injected between L. 2 and 3. His head is depressed forwards, so that again the highest point is the third dorsal vertebra, above which the level cannot rise. If this posture is maintained, the time the patient is kept in it is not as important as in the original technique described. Lately it has been found possible to produce perfect anaesthesia with as little as 8 c.cm. of fluid. Weaker solutions of percaine—that is, 1 in 2,000—have been tried, but the results have not been so good.

The advantages of spinal anaesthesia may be stated as follows:

1. Bleeding is reduced to a minimum.

2. The cough reflex is quite unimpaired.

3. In spite of the fact that one pleural cavity is opened and that no oxygen is being administered under positive pressure, respiration seems to be undisturbed and there is no sign of cyanosis.

The disadvantages are:

1. As in spinal analgesia in other branches of surgery, there is a tendency to post-operative headache.

2. A fall in blood pressure occurs. This can be treated by the intravenous injection of ephedrine in ½-grain doses, and other therapeutic measures.

3. The surgeon is operating on a conscious patient, but by the administration of omnopon 1/3 grain and scopolamine 1/150 grain, combined with two or three grains of nembutal injected intravenously, all memory of the operating theatre is destroyed and, indeed, the patient will probably sleep peacefully throughout the whole operation. Alternatively, a light cyclopropane anaesthesia may be combined with the spinal analgesia.

General Anaesthesia

This is most commonly used in this country for thoracoplasty, apicolysis, for the establishment of extrapleural pneumothorax, and for lobectomy and pneumonectomy. It is proposed to consider the relative advantages of each agent in turn.

Ether is disregarded because of its irritating effect on the mucous membrane and its tendency to cause secretion of mucus. Incidentally, the increased respiratory movement arising out of its stimulating propensities may inconvenience the operator.

Chloroform will produce quiet peaceful anaesthesia, but its toxic effect on the liver is a factor that cannot be overlooked in these operations. The lengthy administrations necessary cause liver dysfunction and acidosis, which definitely militate against smooth convalescence. However, chloroform is a useful adjunct to gas-and-oxygen when given in minute doses in difficult cases.

Divinyl ether is a comparatively new agent which also forms a useful adjunct to nitrous-oxide-oxygen and does not possess the toxic properties of chloroform.

Nitrous-oxide-Oxygen.—The many advantages of this anaesthetic mixture have been described by Langton Hewer in papers written in 1930 and 1935. Hewer still regards nitrous-oxide-oxygen as the best anaesthetic in thoracic cases. Briefly, its advantages are that it is unirritating and non-toxic and is speedily eliminated, leaving very little in the way of after-effects. Nausea and vomiting are reduced to a minimum. It does, however, present certain disadvantages. The chief is that the amount of oxygen it is possible to give with the nitrous oxide is comparatively small, varying from 15 to 20 per cent. It is often difficult to keep a steady anaesthesia without adding small quantities of chloroform or divinyl ether. Then, again, muscular relaxation is very poor.

Ethylene and Acetylene.—Ethylene is quite a useful agent, but is employed very little in this country because of its explosive properties. Incidentally, its unpleasant odour adds to its unpopularity. Acetylene is used on the Continent, but I have had no experience with it.

Cyclopropane is the latest member of the group of inhalational anaesthetics, and has proved itself invaluable in thoracic surgery. The advantages are as follows:

(*a*) It is given with as high a proportion of oxygen as 80 to 85 per cent. This, in cases where there is extensive disease in the lungs with resultant low vital capacity, solves a great problem.

(*b*) Respiratory movement is reduced to a minimum.

(*c*) In spite of quiet anaesthesia a cough reflex is easily maintained.

(*d*) It is rapidly excreted—almost as rapidly as nitrous-oxide-oxygen.

(*e*) The induction, even in cases where no barbiturate is used, is rapid and pleasant, because of the high percentage of oxygen and because of the fact that the odour is not objectionable.

(*f*) Cyclopropane, during extensive experiments carried out by Waters (Waters *et al.*, 1934) of Madison, U.S.A., proved to be absolutely non-toxic to the liver and kidneys.

(*g*) It is absolutely non-irritating to the membranes lining the air passages.

Thus it will be seen that in spite of a few disadvantages cyclopropane very nearly approaches the ideal inhalational anaesthetic.

An Efficient Machine

The machines used in thoracic surgery anaesthesia are numerous and complicated, but the essential features are:

1. The machine should be fitted to administer nitrous oxide and oxygen with some attachment for the adding of chloroform or divinyl ether if necessary.

2. It should be of the closed-circuit type, with a carbon-dioxide-absorbing apparatus. This is, of course, essential with cyclopropane; and in any other form of anaesthesia it keeps the respirations smooth and gentle, helping to maintain throughout that tranquillity which helps so much in intrapleural procedures.

Choice of Method and Agent

The final points to be considered are the best method of anaesthesia and the best agents to be used in various operations:

Operations requiring Novocain.—The following three operations—(*a*) induction of artificial pneumothorax, (*b*) resection of rib for empyema, (*c*) operations on the phrenic nerve—may be grouped together as requiring novocain 1 per cent. infiltration. A small injection of pentothal is kindly and useful in the last-mentioned operation, when the nerve is avulsed. Rib resection is carried out under local infiltration with 1 per cent. novocain, requiring at the most four skin punctures.

Thoracoplasty.—Hewer (1935) in his paper on anaesthesia in thoracic surgery states that he considers nitrous-oxide-oxygen the best anaesthetic for this operation. Over a period of eight years or more at the Brompton Hospital a routine administration of nitrous-oxide-oxygen combined with certain therapeutic measures gave excellent results, and it is doubtful if a change over to cyclopropane would make any improvement. Morphine and hyoscine, or omnopon and scopolamine, are given as premedication. Sometimes the patient is actually put to sleep with a few cubic centimetres of evipan or sodium pentothal. Anaesthesia is maintained with the highest possible percentage of oxygen. Careful watch is kept on the blood pressure and pulse pressure. When the rib resection is actually started 1½ litres of tap water with glucose are run into the rectum. In these cases the added tranquillity and peaceful anaesthesia obtained with cyclopropane do not quite compensate for the increased bleeding and the lengthening of the operation time.

Apicolysis and Extrapleural Pneumothorax.—These are of a similar type of operation, and the essential feature is that quietness of respiration and the minimum of movement must be aimed at when the separation of the pleura is being carried out. In these cases cyclopropane has proved to be vastly superior to nitrous-oxide-oxygen. Extra bleeding with the former is a disadvantage, as is also the fact that the use of diathermy for haemostasis is contraindicated, both of which facts go to increase the length of the operation time. But these disadvantages are outweighed by the smoothness of the anaesthesia obtained.

Thoracotomy.—This group of operations includes the removal of one lobe or the whole of the lung for abscess, bronchiectasis, and carcinoma, and also operations for mediastinal tumours, etc. Where there is very little or no sputum, and where the patient's psychological condition permits, one or other of the techniques described for the production of spinal analgesia is excellent. Provided an artificial pneumothorax has been induced successfully on the affected side, respirations are not impaired and the patient is not at all embarrassed when the pleural cavity is laid open. If, however, postural drainage has not been entirely successful and there is much sputum, then measures must be taken to deal with the accumulation of material in the trachea and bronchi. In the less serious cases anaesthesia may be conducted just using an ordinary face-piece and allowing the patient to cough up the sputum or blood. This is easily carried out with nitrous-oxide-oxygen or light cyclopropane. If, however, the sputum is copious, tracheal or bronchial intubation must be resorted to. The simplest method is to intubate the patient with an ordinary Magill tube by the nasal route. Then, when quiet anaesthesia has been established, a gum-elastic catheter is passed into the trachea beside the Magill tube and attached to a sucker. Continuous or intermittent suction can then be applied. This may tend to upset the anaesthesia in closed-circuit administration, so that it is probably best to use a machine of the intermittent-flow type such as the McKesson, with which machine the pressure can be maintained without altering the proportions of the mixture. The pharynx should be packed off with gauze soaked in liquid paraffin. Intrabronchial intubation is more difficult technically. First of all an extensive cocainization of the pharynx and larynx should be carried out. This will be described later in dealing with bronchoscopy. A special introducer designed by Magill (1936b) carries a tube fitted with an inflatable rubber cuff into the bronchus on the sound side. The cuff is inflated, shutting off the bronchus of the affected side and the lower part of the trachea. This gives very smooth anaesthesia, but in a certain number of cases of lobectomy collapse of the remaining lobe ensued, which may have been due to the prolonged closure of the bronchus of the affected side. Anaesthesia may then be carried out, using either nitrous-oxide-oxygen or cyclopropane. Rovenstine (1935) of New York, and all the anaesthetists at the Lahey Clinic, Boston, use cyclopropane exclusively in their cases, chiefly on account of the advantages enumerated above. They have written papers on this subject, which have been published from time to time in the *Current Researches in Anesthesia and Analgesia.*

Bronchoscopy.—This is always carried out under local anaesthesia at the Brompton Hospital. The nose and pharynx are sprayed with 20 per cent. cocaine, and finally the pharynx and pyriform fossae are swabbed with the solution, allowing the passage of an ordinary Magill's laryngoscope in order to spray the larynx and trachea. With the use of omnopon and scopolamine beforehand the operation is usually performed quite smoothly. In nervous patients pentothal may be injected.

Conclusion

I have touched but briefly on this extensive subject, for a whole paper might be written about one individual operation and one individual method. Results all tend to show that improvements in anaesthesia technique have done great things to help the thoracic surgeon to carry out the formidable operative procedures of the present day.

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INGUINAL LYMPH GLAND BIOPSY IN THE DIAGNOSIS OF TUBERCULOUS DISEASE OF THE KNEE

BY

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(WITH SPECIAL PLATE)

One of the gratifying features of the practice of orthopaedic surgery to-day, at any rate in the London area, is that most patients with tuberculous joint infection are sent to us for treatment at a very early stage. I take this opportunity of expressing my admiration for the vigilance of those general practitioners, tuberculosis officers, and school medical officers to whom this state of affairs is largely due. The result is that the well-known clinical picture of tuberculous joint disease is now rarely seen, and one is often faced with patients who complain of little more than a slight limp and some joint pain, and show the minimum of signs, either clinical or radiographic. The finesse of diagnosis has increased immensely; now one often sees cases so early that it is at first impossible to say with any certainty what form of joint infection is present. Of no joint is this more true than the knee.

I do not propose to discuss the signs that are of value in the diagnosis of tuberculous disease of the knee, but I am sure we agree that there are many cases in which all the available evidence (short of biopsy) is insufficient to justify even a provisional diagnosis. Certain surgeons are content to await events, trusting that some sign will ultimately appear to dispel the uncertainty. This often means waiting many months; and sometimes, as with others who once sought after a sign, "there shall no sign be given." If the patient is a child, treatment is instituted on the assumption that the joint is tuberculous—which retards or prevents the development of characteristic features. This is an unsatisfactory state of affairs, leading to waste of time and hospital beds, unnecessary confinement of the patient, and needless apprehension in the minds of all concerned. That is why exploration of the joint has become increasingly frequent. But this involves opening the largest joint of the body, and perhaps a prolonged search for an obscure juxta-articular focus. Although I have not encountered any unfortunate sequelae, such as sinus formation, in any of the joints that I have explored, I would hesitate to recommend the operation. Minor disasters sometimes occur: I have seen the results of them.

Two and a half years ago my friend F. P. Fitzgerald suggested that examination of an inguinal lymph gland on the affected side might give us valuable information, and this was when our investigation began. At that time the pioneer work of José Valls (1933) of Buenos Aires was unknown to us. To him is due the credit for describing this aid to diagnosis.

Forms of Tuberculous Infection of the Inguinal Lymph Glands

Tuberculosis of the inguinal lymph glands is known to occur under the following conditions: (1) As part of a generalized tuberculous adenitis—a rare condition (Battigelli, 1935). (2) As part of a generalized tuberculous adenitis associated with disease in the lungs—a rare condition (Benda, 1936). (3) As part of a generalized tuberculous adenitis associated with multiple bone foci—again a rare condition (Jungling, 1920; Jacobsen, 1936). (4) Secondary to tuberculous infection of the anal region or vulva. (5) Secondary to tuberculous infection of some part of the lower extremity: (*a*) skin (Carter and Smith, 1935); (*b*) tendon sheaths of the foot (one personal case—unpublished); (*c*) tarsal bones with infection of the soft parts (an unpublished case under the care of my colleague Mr. R. Y. Paton). The point I wish to establish is that there is no evidence that tuberculous inguinal adenitis occurs as an apparently isolated lesion. If it does it must be exceedingly rare. Therefore if it can be shown that a patient with arthritis of the knee occurring as an apparently isolated lesion also has tuberculous foci in the inguinal lymph glands on the same side, it is reasonable to presume that the lesion in the joint is of the same nature.

Although the existence of subsynovial lymphatic vessels in diarthrodial joints has long been known, the lymphatic drainage of human joints has still to be investigated. J. A. Key (1926, 1932) has carried out valuable work on the fate of indian-ink particles injected into the knee-joints of adult rabbits. A small proportion of the particles were carried to the popliteal lymph glands, but none to the inguinal.

It is curious that we have been so slow in arriving at the diagnostic possibilities of examination of lymph glands draining a suspected joint; for palpable enlargement of the external iliac glands has long been recognized, particularly in France, as a feature of tuberculous disease of the hip.

Technique

For removal of the gland local anaesthesia is employed, except in small children. If the glands are palpable, size and inferiority of position should guide the surgeon in his choice: a large gland situated low in the femoral triangle is promising. If no gland is palpable, the incision should be made about one inch below the site of the saphenous opening. Two glands may be removed if easily accessible, but it must be remembered that the operation is a biopsy and nothing more. A fragment of gland about $10 \times 5 \times 5$ mm. is set aside for bacteriological examination (guinea-pig inoculation or culture), and the remainder is examined histologically.

Results

The results in the eighteen cases of tuberculous disease in which our information is now sufficiently complete are set out in the table. In a few of these cases inguinal biopsy was not required to establish the diagnosis, since material from the knee was available from the first; how-

Table showing Results of Inguinal Lymph Gland Biopsy in Diagnosis of Tuberculous Disease of the Knee

Case	Duration of Arthritis before Biopsy	Radiographic Changes (general rarefaction present in every case)	Highest Recorded Erythrocyte Sedimentation Rate (Westergren)	Cases in which Material from Joint was Obtainable	Examination of Gland		Comments
					Section	Guinea-pig	
1	15 m.	Patellar nucleus enlarged	10	+T.B. present	+	+	No tubercles found in gland from opposite groin
2	3 m.	Patellar nucleus enlarged	Not recorded		+	Died from other cause	
3	3 m.	Rarefaction	12	+T.B. present	+	+	No tubercles found in gland from opposite groin
4	6 m.	Rarefaction	8		+	−	
5	4 m.	Erosion of joint surfaces	43	+T.B. present	+	Insufficient material	Died : generalized tuberculosis : no tubercles found in glands from opposite groin or axilla on side of lesion
6	11 m.	Rarefaction	45		+	+	
7	12 m.	Rarefaction	44	+T.B. present	−	Insufficient material	Tuberculous hip on opposite side
8	15 m.	Patellar nucleus enlarged : narrowing of joint space	Not recorded		+	+	
9	6 m.	Rarefaction	8.5		−	+	
10	About 3 years	Epiphyseal cavitation	11		−	+	
11	4 years	Erosion of joint surfaces	88	+T.B. present	+	Died from other cause	
12	5 years	Rarefaction	Not recorded		+	−	
13	13 m.	Erosion of joint surfaces	50	+T.B. present	−	−	Died : tuberculous peritonitis and pulmonary disease. No tubercles found in glands from opposite groin
14	4 m.	Rarefaction	Not recorded	+T.B. present	−	−	
15	24 m.	Narrowing of joint space	7	+T.B. present	+	+	
16	18 m.	Erosion of joint surfaces	Not recorded		+		
17	About 8 years	Slight narrowing of joint space	6	+T.B. present	+		History and clinical signs not at all suggestive of tuberculous disease
18	3 m.	Erosion of joint surfaces	6		+		

The Mantoux reaction was positive in every case.

Analysis of Results

Examination of Glands :

Negative results	3 cases (Nos. 7, 13, 14)
Positive results	15 cases
	18

Positive Results :

Section and guinea-pig positive	5
Section positive, guinea-pig negative	2
Section negative, guinea-pig positive	2
Section positive, guinea-pig died from intercurrent infection	2
Section positive, insufficient material for guinea-pig inoculation	1
Section positive, guinea-pig inoculation not requested (last three cases in the series)	3
	15

ever, we felt justified in removing glands from these patients in order to establish the reliability or otherwise of the method. That there should be only three negative results in a series of eighteen cases is remarkable. Even if we believe that a subclinical tuberculous adenitis is a constant concomitant of disease in the knee, it is conceivable that certain glands escape infection, and there is a real chance of obtaining a normal gland in what might pardonably be described as a "lucky-dip" biopsy. Fig. 1 on the Special Plate shows a remarkable state of affairs in the single gland removed from Case 16. One half of the gland is stuffed with tubercles, the other is entirely free. It is likely that neighbouring glands escaped altogether. A state of affairs such as this may explain the discrepancies between the histological and the bacteriological results. If this particular gland had been bisected at its isthmus, instead of being cut in a longitudinal plane, the result from one half would have been negative ; from the other, positive.

Valls mentions cases in which a gland appeared normal histologically but showed the presence of tubercle bacilli bacteriologically—as in Cases 9 and 10 in my series. He suggests that the bacilli had merely lodged in the gland, which had not yet had time to produce a characteristic cellular reaction. There is no need to make any such assumption. Until it is shown that bacilli can remain in a gland for an appreciable time before provoking any cellular abnormality, it is wiser to postulate a patchy distribution of the tuberculous foci. This would explain the discrepant results in his cases and mine ; for one and the same piece of material cannot be used for guinea-pig inoculation and for the preparation of sections. It is significant that similar discrepancies were found by Scarff and Whitby (1928) in examining tonsils for tuberculous disease.

A positive result is of the greatest possible value, but a negative finding cannot be taken to exclude tuberculous disease of the joint. All the same, a method of diagnosis yielding about 80 per cent. of positive results very greatly reduces the degree of uncertainty and, in consequence, the need for joint biopsy—itself not an entirely reliable diagnostic aid. To ensure that a positive finding could not possibly be fortuitous we removed glands from other regions in four cases (Nos. 1, 3, 5, 13) ; in none was there any evidence of tuberculous disease. Nothing need be said here of the ten cases in which biopsy was negative and in which the subsequent course of events justified a diagnosis of non-tuberculous arthritis. It is, however, necessary that we should keep these patients under observation over a considerable period, since it is remotely possible that one or other of them may, after all, prove tuberculous. This would diminish still further the value of a negative biopsy report.

Valls's figures are much the same as mine. He obtained positive results in fifteen out of seventeen biopsies—though his examinations were not confined to the inguinal glands and the knee-joint ; there were also ten cases that proved negative both clinically and on biopsy of the glands.

Until very recently we have confined our attention to one joint, the knee. Having established that gland biopsy

is a worth-while procedure, the next step is to apply it to doubtful cases of arthritis of other joints. Valls describes cases of disease in the elbow and wrist with positive findings in the epitrochlear gland. In September, 1938, I obtained a positive result from an inguinal gland in a case of disease in the ankle and from an external iliac gland in a case of hip disease. Mr. H. Osmond Clarke tells me that he has had considerable experience of this last investigation: I confirm his opinion that it is a justifiable procedure, for a gland can be removed extraperitoneally through a very small incision.

Summary

The diagnosis of tuberculous disease of a joint at an early stage is often a difficult problem. A positive diagnosis, at any rate in disease of the knee, may often be obtained by pathological examination of the regional lymph glands. A negative finding cannot be accepted as conclusive.

The merit of the method is its simplicity and safety.

I gratefully acknowledge my indebtedness to Professor E. C. Dodds, pathologist to the hospital, and to Professor McIntosh, Director of the Bland-Sutton Institute of Pathology, Middlesex Hospital, for conducting the pathological work on which the investigation was so dependent.

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THE ELECTRO-ENCEPHALOGRAM IN A CASE OF PATHOLOGICAL SLEEP DUE TO HYPOTHALAMIC TUMOUR

BY

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(WITH SPECIAL PLATE)

Hypersomnia occurring in attacks or for prolonged periods is well known as a symptom of hypothalamic tumours, but cases in which the symptom is of localizing value and is not associated with increase of intracranial pressure are uncommon. The following case is considered particularly worthy of record as it permitted electro-encephalographic observations to be made during pathological sleep.

Case History

The patient, a widow aged 62, was admitted to the Maida Vale Hospital on August 5, 1937, under Dr. Wilfred Harris. She died on August 26, 1937. There was nothing of note in her family history. At the age of 57 she had an illness associated with indefinite nervous symptoms—dragging of the feet and a tendency to fall about. Then she appeared to lose her speech for some days, became doubly incontinent, and was confined to bed for five weeks. When she got up she complained of giddiness, but gradually made a complete recovery.

She remained quite well up to two and a half months before admission to hospital, when she began to complain of general weakness and exhaustion. She had been gaining greatly in weight, and the symptoms were attributed to a weight-reducing diet. She got gradually worse, however, and soon her daughter noticed that she was becoming confused, disorientated as regards time, and failed to recognize her friends. Four weeks before admission she had become extremely sleepy, and there was difficulty in rousing her. The symptoms became gradually worse, and five days before admission she became incontinent of urine and faeces. At no time did she complain of headache, vomiting, or visual symptoms.

Examination.—The patient was observed to be very obese generally, with no special distribution of the subcutaneous fat. She was extremely drowsy, and lay in bed on her back with

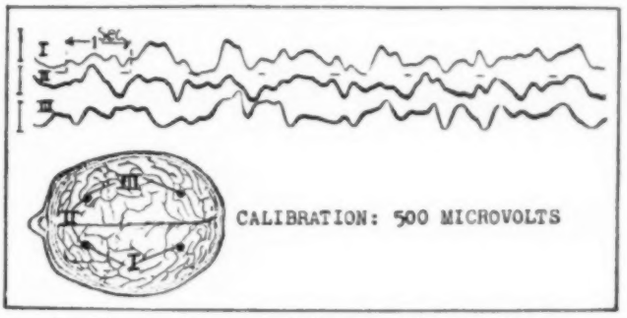

FIG. A.—An electro-encephalogram of the case, taken on August 21.

her eyes closed. Her respirations were regular and deep at 20 a minute. She resisted any attempt to open her eyes, but with further stimulation she could gradually be roused, so that she would open her eyes, stir, perhaps smile, and mutter a few meaningless words. At other times she was more awake, and then it was noticed that she moved all her limbs normally and also opened her eyes on command. She was incontinent of urine and faeces. In the cranial nerves there were no abnormal physical signs. The blink reflex was present on both sides and there was no papilloedema. There was no muscular wasting. Tone was normal in all the limbs. Power could not be tested, but there was no difference in the spontaneous movements on the two sides on admission. The reflexes were normal in the arms, but the abdominal reflexes and the deep reflexes in the legs were absent, and the plantars were flexor. The sensation of pain appeared to be appreciated everywhere.

The pulse was regular at 70 a minute, and the blood pressure was 180 mm. Hg systolic and 110 mm. Hg diastolic. The urine was normal; it was not measured, but there was no indication of polyuria or polydipsia. The cerebrospinal fluid was under normal pressure (140 mm. C.S.F.); it was clear and colourless, the total protein was 0.1 per cent., and there were 39 lymphocytes per c.mm. The Lange colloidal gold curve was positive (0113333222) and the Wassermann reaction was negative in the blood and cerebrospinal fluid.

The electro-encephalogram was first taken on August 21, and it showed a continuous slow high-voltage discharge from all areas of the cortex (Fig. A). This was repeated on several occasions during the next few days, similar records being obtained. The discharge persisted almost unchanged when the patient was partially roused. There was no trace of the normal alpha and beta rhythms, but the potential of the slow discharge decreased by about 20 per cent. when the patient was awakened as much as possible, the rhythm remaining the same.

On August 22 the morning temperature was subnormal, and towards evening the patient's condition suddenly changed. She became pale and cold; her pulse was 48 a minute, but was so weak that her blood pressure could not be accurately measured. Her respirations became shallower at 16 to 18 a

minute, and her rectal temperature was too low to be registered on a clinical thermometer. She was given intravenous glucose, coramine, and also radiant-heat baths. After four to five hours her pulse increased in volume and the rate was 70 a minute; the blood pressure was the same as on admission. The temperature remained subnormal during the next day (Fig. B), when it was noticed that she could not be roused

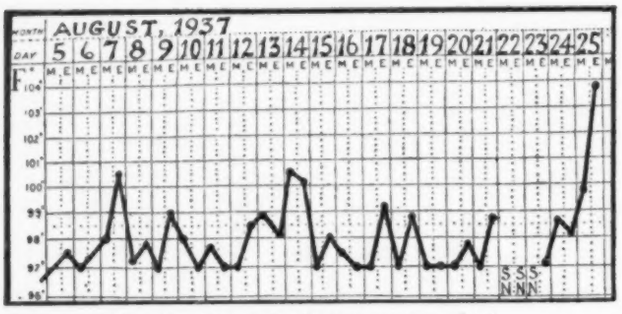

FIG. B.—The patient's temperature chart.

at all and that there was a flaccid hemiplegia on the right side with cogwheel rigidity in the left arm and leg.

On August 24 her temperature was normal. Ventriculography revealed a moderate dilatation of the right ventricle, with defective filling of the third ventricle and anterior part of the left lateral ventricle. Exploratory craniotomy revealed that the tumour was not cystic or open to surgical removal. The intracranial pressure was normal. The patient died next day, her temperature rising to 103.5° F.

POST-MORTEM EXAMINATION

The brain only was available for examination. The external appearance was normal except that the hypothalamic region was swollen and tumour tissue presented in the stem of the left Sylvian fissure. Vertical section revealed a large soft greyish-red tumour involving the thalamus, hypothalamus, and basal ganglia on the left side. At the level of the foramen of Monro it was a large circular mass extending from the third ventricle outwards to the external capsule and from the inferior wall of the body of the lateral ventricle down to the hypothalamus. It extended forwards in diminishing extent to a point ½ cm. behind the anterior end of the caudate nucleus, and posteriorly in a medial and inferior direction to the anterior limit of the red nucleus. It thus involved the greater part of the thalamus, internal capsule, basal ganglia, and hypothalamus on the left side, sparing only the posterior third of these structures. There was also an area of recent softening about 1 cm. in diameter in the anterior part of the right globus pallidus.

The extent of involvement of the hypothalamus was studied microscopically (Plate, Fig. 1). It was observed that the main tumour mass involved the lower part of the septum pellucidum, and a wedge-shaped mass extended across the midline towards the medial edge of the softening in the right globus pallidus. Otherwise it was confined to the left side. Here it involved diffusely the supra-optic nucleus, the basal nucleus of Meynert, and the upper part of the paraventricular nucleus. The left pre-mammillary nucleus and the magnocellularis part of the mammillary body were also invaded, while the parvocellularis part was free. The tuberal nucleus on the left side was unaffected, as was the infundibular stalk and the pituitary body.

On the right side the supra-optic, paraventricular, and tuberal nuclei and the basal nucleus of Meynert were intact. The region of the mammillary body was distorted and elongated in a vertical and anterior direction. The mammillary body itself was elongated. The pre-mammillary nucleus was stretched, but the cells appeared normal. The small-celled mammillary body had also normal cells. The large-celled part of the mammillary body contained numerous vessels with thickened walls; the cells were large and pale, with degenerated nuclei, and there was considerable outfall of cells. The hypothalamus on the right side was not invaded by the main mass of the tumour, but occasionally perivascular spaces were filled with tumour cells, while there was a diffuse gliosis lateral to the fornix and the magnocellularis nucleus of the mammillary body.

Microscopically the tumour consisted of round nuclei with well-defined nuclear membrane and a granular chromatin network, which was sometimes very dense in the smaller nuclei. Mitoses were frequent. There was a small cell-body faintly stained both with nuclear and silver stains. The cells were densely and evenly arranged throughout the main mass of the tumour. There was, however, perivascular condensation, and towards the edge of the tumour the cells were found infiltrating between the nervous tissues, and the tumour cells appeared to extend long distances from the main tumour along the perivascular spaces (Plate, Fig. 2). Perdrau's stain showed definite perivascular reticulin rings, and strands of reticulin extended irregularly for some distance from the vessels among the tumour cells. This appearance conforms closely to the description of "perithelial sarcoma" by Bailey (1929).

Discussion

The case is of special interest on account of the electro-encephalographic findings. The records show a distinct similarity to those published by Loomis, Harvey, and Hobart (1937) taken during deep natural sleep. The characteristics are the large, slow, irregular potential waves and the imperfect synchronization of the two hemispheres. A superficially similar record may be found in deep ether anaesthesia, but in anaesthesia the rhythm is much more regular and more perfectly synchronized in the two hemispheres. In cases of coma due to raised intracranial pressure or hydrocephalus a very regular rhythm of smaller amplitude may be found in all areas, and the electro-encephalogram in these cases should be readily distinguishable from the records found in pathological sleep; so that it would seem that the electro-encephalogram may be useful in differentiating between the stupor of hydrocephalus and that of hypersomnia associated with a local lesion in the hypothalamic region. Electro-encephalography of these cases in earlier stages should prove interesting in connexion with the bilateral symmetry of the normal rhythms, which, according to some observers, is attributable to a drive from a common basal pacemaker.

Loomis and his collaborators have called the slow waves of deep sleep "delta waves," a term originally coined for the slow discharges found in the neighbourhood of cerebral tumours (Walter, 1936, 1937, 1938), and this seems a convenient usage until the slow waves in various conditions are shown to be fundamentally different. Whenever delta waves are found the cortex responsible for them is in a state of profound, sometimes pathological, inactivity. In the case here presented the size and generality of the delta discharge would suggest that no part of the cortex was functional. How this condition was brought about by the hypothalamic lesion is a matter for conjecture. There is little doubt that the integrity of the hypothalamic nuclei and connexions is necessary for the maintenance of "wakefulness" and for the normal alternation of sleep and waking. In this case, while the tumour did not bring about complete destruction of the hypothalamus, the posterior part of this region was grossly distorted and was involved in new growth, so that posterior efferent hypothalamic fibres may have been interrupted. This would correspond with previous clinical and pathological experience that gross or posteriorly situated tumours are more likely to be associated with hypersomnia. It has also been suggested that posterior lesions are more likely to be associated with hypothermia, and this symptom was present for a period of forty-eight hours in the present case. The tumour extended widely throughout the diencephalon, however, and the degree of functional disturbance in the relatively intact region of the hypo-

thalamus cannot be assessed, so that the case does not offer any further clues as to the exact mechanism of pathological sleep.

Summary

Electro-encephalograms have been taken from a case of diencephalic perithelial sarcoma, in a state of pathological sleep.

The records resemble most of those found in deep natural sleep, showing very large, slow, irregular waves, imperfectly synchronized in the two hemispheres.

The exact extent of the tumour is described, and the possible significance of the findings briefly discussed.

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"SODIUM THIOETHAMYL"

(SODIUM ISOAMYLETHYLTHIOBARBITURATE)

BY

C. LANGTON HEWER, M.B., D.A.

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The basal narcotic known as sodium thioethamyl was submitted by the manufacturers (Messrs. Parke, Davis and Co.) to the joint Anaesthetics Committee of the Medical Research Council and the Anaesthetics Section of the Royal Society of Medicine, through the Therapeutic Trials Committee of the Medical Research Council.

Composition and Properties

Sodium thioethamyl is the trade name for sodium isoamylethylthiobarbiturate. This preparation is therefore the sulphur homologue of sodium isoamylethylbarbiturate (sodium amytal). It is supplied as a yellow powder in 1.5 gramme glass capsules. The powder is readily soluble in water, giving off a gas smelling of sulphuretted hydrogen and yielding a clear straw-coloured solution. The recommended concentration is a 10 per cent. solution, so that 15 c.cm. of distilled water are required for each ampoule of powder. I found it better, however, to dissolve the contents of each ampoule in 20 c.cm. of distilled water: not only is this more convenient, but the resulting 7.5 per cent. solution appeared to cause less depression of the respiratory and circulatory systems.

Pharmacology

The pharmacology and toxicity of sodium thioethamyl have been investigated in America by Gruber (1937a, 1937b), Gruhzit *et al.* (1937), and Burstein and Rovenstine (1938). It is concluded that the substance behaves in a very similar manner to the other well-known short-acting barbiturates, and that in cats the safety factor (ratio of minimal lethal dose to minimal anaesthetic dose) is 3.75 to 1.

Administration in Man

A freshly prepared 7.5 per cent. solution is injected intravenously in exactly the same way, and observing the same precautions, as in the case of evipan sodium and pentothal sodium. About 100 administrations were given (by Dr. J. Hunter, Dr. C. Langton Hewer, and Dr. E. Landau), and it would appear that the effects are almost indistinguishable from those obtained with sodium ethyl [1-methylbutyl] thiobarbiturate (pentothal sodium). In view of the fact that similar results with sodium thioethamyl have already been recorded in America (by Cullen and Rovenstine, 1938), it seemed unnecessary to make a more extensive investigation or to prepare a more detailed report.

The conclusion was reached that, so far as our present knowledge extends, sodium thioethamyl is a useful drug, and can satisfactorily be used as a short-acting barbiturate by intravenous injection. Its greatest use is for basal narcosis immediately preceding general anaesthesia or as a complete anaesthetic for short operations when given in repeated doses. Since the drug contains a sulphur atom in its molecule it should not be used on patients receiving sulphanilamide preparations. This contraindication should be added to those already well known as applying to the short-acting barbiturates generally.

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Clinical Memoranda

Diaphragmatic Hernia following Empyema

(WITH SPECIAL PLATE)

Diaphragmatic hernia is comparatively rare even when it is due to the usual causes of congenital abnormality or trauma; but a diaphragmatic hernia developing as a sequel to empyema is so uncommon that it seems to merit publication.

CASE REPORT

A traveller aged 36 developed a left-sided pneumonia in June, 1936. Symptoms of empyema became apparent on the fifth day of the pneumonia, and temporary drainage was carried out in his own home, as at that time he was unfit to be moved. He was subsequently transferred to a nursing home, where two operations were performed and adequate drainage secured. Recovery was slow but uneventful; he was able to return home in December, 1936.

His only complaints during the first half of 1937 were that he became very easily exhausted and liable to sweats. He put on a great deal of weight, reaching 13 st. 5 lb. on May 25, a gain of about a stone and a half from February 14: his normal weight being about 11 st. He was able to resume work in June. On December 1, 1937, he returned from Scotland on account of an attack of "food poisoning" which was causing persistent vomiting. This vomiting became so intractable during the succeeding week that all food by the mouth was stopped for two days, and he was put on rectal salines and glucose. The temperature remained slightly subnormal throughout his attack; no physical signs could be detected, and no adequate reason for the attack was discovered.

During the next four or five months he had bouts of vomiting about once a month, and between these bouts found that a full meal and certain articles of diet produced nausea. He was also steadily losing weight. Repeated examinations by others besides myself disclosed no physical signs. In June, 1938, the attacks of vomiting occurred almost every ten days; and the patient volunteered the information that he appeared to vomit more than he had swallowed. The vomit consisted of discoloured fluid and practically no food, and the act of vomiting (which was preceded by several hours of nausea) generally cleared up the attack. Latterly he com-

plained of gurgling in the precordial region before obtaining relief by vomiting. At this time his weight was down to a little over 9 st.

In July he was radiographed by Dr. Calthrop, whose excellent photographs made the diagnosis abundantly clear (see Special Plate). These radiographs show almost total herniation of the stomach through the diaphragm. The stomach is seen to be inverted, the pylorus and pyloric antrum lying anteriorly to the body of the stomach. The stomach emptied extremely slowly, shown by only a trickle of meal leaving it; this was probably due to constriction of the diaphragmatic opening, as no organic cause could be found. The stomach showed no evidence of hyperperistalsis or gastrectasis, and the position of the diaphragmatic opening demonstrates that the hernia was not of the commoner congenital type.

It is interesting to speculate whether the first and intense attack of vomiting in December, 1937, was due to some such cause as food poisoning or gastric influenza, the violence of which caused the stomach to herniate through an area of diaphragm weakened by the empyema; or whether the hernia was already present and this attack was the first and the most severe partial strangulation of the herniated portion of the stomach.

Operation.—An operation was performed by Mr. Tudor Edwards on August 24 under spinal anaesthesia, preceded by scopolamine and omnopon and an injection of ephedrine. After excision of the old empyema scar and removal of some regenerated rib the pleural layers were found to be adherent. The lung was separated from the chest wall and outer part of the diaphragm. The adventitious sac formed by firm lung and mediastinal visceral pleura on the outer, and mediastinal pleura on the inner, side was exposed. No true sac covered the herniated contents, which consisted chiefly of stomach, with a portion of colon, small intestine, and omentum, the latter being firmly adherent to the diaphragmatic opening, which measured about 3 inches by 2 inches. After reduction of the contents the edges of the diaphragmatic opening were excised and overlapped by interrupted linen thread sutures, two layers being inserted. As the firmness of the lung prevented immediate expansion to fill the deficiency, an intercostal tube was inserted into the cavity, and was removed three days later.

Recovery was uninterrupted, the lung steadily expanding and the effusion being gradually absorbed without any necessity for aspiration.

Hampstead, N.W.3. F. P. N. PARSONS.

Recurrent Intussusception

The following case of intussusceptions is, I think, of sufficient interest and rarity to put on record.

CASE REPORT

A male patient aged 28 was operated on in the Rotherham Hospital in 1922 for gangrenous appendicitis with pelvic abscess. The appendix was removed and the pelvis drained suprapubically. He was in hospital for five weeks, and it was a further five weeks before he was healed. In 1925 he had severe pain and vomiting for one hour. A laparotomy was performed the same day in the Rotherham Hospital and an irreducible intussusception was found. Three feet of gangrenous bowel were removed and a side-to-side anastomosis done. A polypus was found to be the cause of the intussusception. He made an uninterrupted recovery. In September, 1937, he passed a large amount of dark blood per rectum, and continued to have abdominal pain from this time without a day's intermission until he had a further operation in September, 1938. During the whole of that year he had periodic melaena, and in August, 1938, a severe haemorrhage necessitated a blood transfusion. A barium enema and a barium meal did not reveal anything abnormal, and at no time did he have the symptoms of intestinal obstruction.

On September 22, 1938, I operated on him in the Rotherham Hospital, and, after having difficulty with considerable adhesions, found an intussusception two feet long in the jejunum, starting three feet from the duodeno-jejunal junction. The proximal jejunum was very dilated (about three to four inches in diameter) and hypertrophied. I had no difficulty at all in reducing the intussusception, and after reduction could feel about twenty soft bodies, roughly one inch in diameter, which might have been faeces but which, I think, were probably polypi. Roughly half way between the duodeno-jejunal flexure and the ileo-caecal junction was the anastomosis made in 1922. It was in perfect condition and had an adequate stoma. Half way down the ileum was another intussusception, nine inches long, which reduced easily; no signs of any inflammatory reaction were seen. Apart from a few adhesions and the absence of the appendix the ileo-caecal region was normal. The operation was done under a spinal anaesthetic, and greatly exaggerated peristaltic movements were present the whole time throughout the small bowel, but particularly in the upper half of the jejunum. The patient made an uninterrupted recovery.

COMMENT

The points of interest are that a man who was lucky enough to survive an operation for the removal of an irreducible intussusception of the jejunum subsequently developed two further intussusceptions, and although he had probably had one of them for nearly a year it was easily reducible. A further point of interest is that his daughter, aged 2 years 4 months, died in the Rotherham Hospital in 1937 following an operation for an intussusception that was gangrenous and irreducible. He is well and free from symptoms now, but one looks forward with some trepidation to his future. What should be done if he has further haemorrhage, for one must presume the bleeding comes from the polypi; and, even worse, what should be done if he develops a further intussusception? To cure him it almost looks as if a more or less complete removal of his jejunum would be necessary, and one wonders if such a procedure would be justifiable. I can find no record of such a predicament.

Rotherham. ERIC COLDREY, M.D., F.R.C.S.

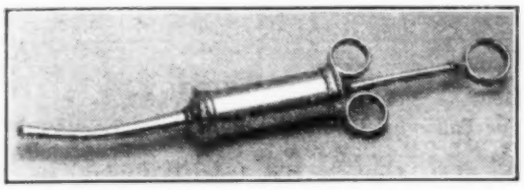
Intravaginal Glycerin Medication

I was in Dr. Remington Hobbs's hospital as a resident in 1921, when he first introduced glycerin treatment into obstetrics and gynaecology, but I did not then realize that his enthusiasm for its use was so well founded or its possible application so widespread. General modifications and alteration of his views have since occurred. For example, intra-uterine glycerin as a treatment for gynaecological sepsis is becoming more and more infrequent. The reasons for this are: (1) that severe uterine colic often appears immediately after its introduction, and (2) that occasionally salpingitis occurs a few days after the treatment.

Having seen a few instances of these sequelae one is not likely to continue intra-uterine glycerin in gynaecology. In obstetric cases, however, intra-uterine glycerin is free from the dangers of acute uterine colic and also seems free from the liability to cause ascending tubal infection. The introduction of a rubber catheter into the uterus and the injection of pure sterile glycerin is frequently done in cases of puerperal sepsis with profuse foul lochia. The results are undoubtedly good, and in cases of puerperal salpingitis this treatment sometimes causes the rapid disappearance of a large abdominal swelling due to a congested uterus with adherent pus-filled tubes.

The introduction of the catheter into the cervix of an ill patient frequently causes a certain amount of distress, and the time involved in the procedure prevents its being done often enough. I have therefore become interested

in intravaginal glycerin, and find it almost equally effective, extremely easy to apply, and not at all disturbing to the patient. A syringe such as that made by Lewis Bros. of High Street, Marylebone, and illustrated below, can be used easily by a nurse. Directions are given for the



patient to lie flat on her back in bed—preferably with the foot of the bed raised for half an hour, so as to help her retain in her vagina two syringefuls of warm glycerin.

In sapraemic cases I order intravaginal glycerin twice a day for two days, then once daily till the temperature drops, which usually takes about four days in all. Other remedies are, of course, used concurrently—for example, prontosil, special diet, potassium citrate mixture—with elevation of the head of the bed a quarter of an hour after the glycerin has been given and local heat.

For septic tears of the perineum after labour glycerin intravaginally is an effective treatment. The glycerin wells out of the vagina over the torn soft sloughing area, and in a few hours reduces its turgidity by extracting the pus from the wound osmotically. The treatment of septic puerperal tears by fomentations is extremely dangerous in my experience, as heat on a recent septic wound seems to drive the sepsis inwards and cause a rapid spread of the inflammation. The most successful results I have seen in regard to glycerin and the treatment of sepsis have been in cases of acute sepsis of breast tissue. If abscesses of the breast are incised too early the septic breast tissues sometimes fungate through the wounds and black sloughs appear. Glycerin dressings cause a rapid subsidence of the inflammation.

Injection of glycerin into the umbilical vein with a view to assisting the extraction of an adherent placenta has been advocated. I have discarded this practice as a consequence of one of my patients developing haemolytic jaundice and anuria for eleven days, due apparently to the absorption of a glycerin extract of the placenta. The patient recovered.

Glycerin may also be used as a haemostatic. The uterine cavity can be swabbed out after the child and the placenta are removed by Caesarean section. Intrauterine injections of hot glycerin can be given in postpartum haemorrhage cases with good results. I use vaginal glycerin after Caesarean section to ease lochial discharge, if scanty, and if the os is small and not easily dilatable at the operation.

In salpingitis and gonorrhoeal cervicitis vaginal glycerins are of assistance, and in my opinion are preferable to hot douches.

After prolapse operations on the vagina such as the Fothergill I find that intravaginal glycerin from the fifth day onwards is of great benefit to the patient. It reduces the burning tight feeling, and the relief is such that many of the patients mention it afterwards with gratitude.

I believe that glycerin can be of great value in the treatment of wound sepsis, and regret we did not know of it and use it in the last war.

W. MCKIM H. MCCULLAGH,
D.S.O., *M.C.*, F.R.C.S., F.C.O.G.

London, W.1.

Reviews

MAGNUM OPUS

A Cerebral Atlas, illustrating the Differences between the Brains of Mentally Defective and Normal Individuals, with a Social, Mental, and Neurological Record of 120 Defectives during Life. By Richard J. A. Berry, M.D., F.R.S.Ed., F.R.C.S.Ed. (Pp. 426; 430 photographs. £5 5s.) London: Oxford University Press. 1938.

In his introduction the author expresses the hope that "this work will be a source of pride" to the research team at Stoke Park Colony, Bristol, which has collaborated with him in its production. It is not only a work in which the author and his colleagues may take a legitimate pride, but one of which its producers and publishers, and more especially Mrs. R. G. Burden, the foundress of the Burden Mental Research Trust, who financed both research and publication, may well feel proud.

To find an English precedent for a work which rivals this in its imposing magnificence and in its scope one has to go back fully seventy years to the appearance of the *Crania Britannica*. In that work two medical men, Drs. Barnard Davis and John Thurnam, gave accurate and life-size drawings of all the authenticated skulls of prehistoric Britons known in their time, with a detailed account of the site and time of discovery. *Crania Britannica* has proved a treasury for generations of men who have searched into the origin and history of the people of our islands. This *Cerebral Atlas* will prove to be of equal service to future generations of students who apply themselves not to the problems of the skull but to those of the organ which lies within the skull—the brain—by far the most complex of all the organs of the human body. Especially will it serve the needs of those who investigate the problems of mental deficiency, for in this atlas they will find an accurate delineation of the cerebral features of 120 individuals whose brains were "not only smaller than normal but in most instances too small for the purposes of human intelligence." For comparison there are given corresponding views of brains of individuals which served sufficiently well to permit their owners to pass as "normals."

The manner in which Dr. Berry presents his cerebral comparisons is novel. He concentrates attention on the cerebrum, using the right hemisphere as a representative unit. He reproduces excellent photographs of two aspects of each specimen—its lateral and mesial—and as he regards size as a better index of cerebral efficiency than form he has been careful to take his photographs, and to reproduce them, so that the size as well as the convolutionary pattern are at once apparent to his readers. He gives measurements of the volume and weight of each hemisphere portrayed, and a brief account of its convolutionary development. The social circumstances, the neurological reactions, and the degree of mental failure are given for every case.

It is well over forty years since Dr. Berry took a high place among British anatomists. He was bred in the Edinburgh school under Sir William Turner. His researches on the appendix and caecum were the first to bring him name and fame. It was during the tenure of the chair of anatomy in Melbourne University (1905-29) that he became interested in the problem of mental deficiency. During the past twenty years, particularly since he became Director of Medical Services at Stoke Park Colony, he has contributed a succession of important

papers, monographs, and books to the literature of disordered development of the brain. The *Cerebral Atlas* is a fitting culmination to a lifetime of strenuous and gallant endeavour. This atlas is of particular interest for the reviewer. For a long series of years he has been attempting to assess the mental efficiency of early forms of fossil man by a study of their endocranial casts. Without a doubt volume is important; but so are such anatomical features as can be deciphered on the surface of such casts —and many features of importance can be deciphered with certainty. He therefore took the opportunity, as he turned over the pages of Dr. Berry's atlas, where competent and incompetent brains are delineated side by side, of testing his success in assessing degree of mental ability or disability by an inspection of each specimen—taking care to hide the accompanying legends which gave the right answers. The reviewer has to admit a high percentage of failures: some which seemed to be those of "idiots" proved to be "feeble intellects"; some that seemed normal in size and in convolutionary pattern proved to be "imbeciles"; and, worse still, some that seemed to be imbecile proved to be normal. Yet there remained a high percentage of successes; as Dr. Berry insists, the "defectives" shade into the "normals"; there is no sharp line of separation between them.

"Too small to serve the purposes of human intelligence" is a phrase which recurs again and again in Dr. Berry's pages. Where shall we draw the line in brain volume between that which is adequate and that which is inadequate for the manifestations of human life? Students of human evolution have fixed the line at about 900 c.cm. of brain; below that amount is regarded as insufficient. And yet, if there is aught of truth in the theory of man's evolution from the ape, there must have been pre-human ancestors whose brains, though sufficient for the lives led by their owners, were not capable of that kind of intelligence we call human. Now 80 per cent. of the brains of idiots and imbeciles described and figured by Dr. Berry are well above the 900 c.cm. limit, and yet were totally insufficient to accomplish, if left uncared for, any kind of even animal life for their owners. Amongst Australian aborigines there are competent individuals who are on the 900 c.cm. line—or even below it. Volume and convolutionary pattern cannot provide the final criteria of mental efficiency, nor the ultimate clue to mental deficiency.

We have only to turn to the final photographs of Dr. Berry's atlas, which represent side by side photomicrographs of the cortex of normal and abnormal brains, to find a more hopeful clue to the anatomical basis of congenital mental stupidity. In the normal brain, as Dr. Berry has written, "neurones arrange themselves into that orderly precision of arcs without which no normal mental reaction is possible." His photomicrographs do but confirm the teaching of Bolton, that manifestations of human intelligence are a function of the cortex, especially of these strata which are superficial to the granular layer IV.

To make an adequate survey of the microscopical structure and developmental condition of the cortex of the brain of a single microcephalic idiot is a Herculean undertaking, and yet nothing less will suffice if we are to fathom the structural basis of developmental failure of the human brain. Nay, a survey of the cortex alone will not prove sufficient. There are many symptoms manifested by mental deficients which seem to implicate the basal parts of the brain—particularly the corpus striatum. So far as concerns the naked-eye appearances Dr. Berry has laid wisely and well a true basis for a further advance. The next step is a more laborious, more expensive, and yet a more promising one—the systematic microscopical examination and reconstruction of a series of microcephalic brains. The Burden Mental Research Trust, of which Dr. Berry is chairman, has already accomplished so much that medicine, and science in the widest sense, may look hopefully to it to undertake the next important step.

A. K.

ENDOCRINOLOGY

Major Endocrine Disorders. By S. Levy Simpson, M.A., M.D., F.R.C.P. Foreword by Sir Walter Langdon-Brown, M.A., M.D., F.R.C.P. (Pp. 184; 21 figures. 10s. 6d.) London: John Bale (Medical Publications). 1938.

It is somewhat surprising that apart from Sir Humphry Rolleston's excellent historical treatise on the subject this is the first book on general clinical endocrinology written by an English author for home consumption. For this reason alone Dr. Levy Simpson's work is of considerable interest. Again, for the same reason the title is rather disappointing. One might have hoped that a general physician with such well-recognized qualifications in the subject would have elected to write a standard textbook. He has, however, confined his attention to "Major Endocrine Disorders," and has dealt with these conditions in an illuminating manner. The photographic illustrations are striking enough to justify the publication, for diagnosis at first sight is often the most important feature of the clinical endocrinologist's function. In most cases, moreover, the description of the disorder is succinct and to the point.

The discussion of adrenal virilism and pituitary basophilism, however, is perhaps too full for such a small book, and too controversial for the reader who is humbly seeking the orthodox opinion. The author is well known as an expert on adrenal cortical disorders, and has perhaps failed to resist the temptation of riding a fascinating hobby-horse, which might have been more aptly confined to the medium of scientific journals.

The book is suitable for the library of the discerning physician, who will probably look forward to a more orthodox volume on clinical endocrinology from the same pen.

PATHOLOGY

Essentials of Pathology. By Lawrence W. Smith, M.D., and Edwin S. Gault, M.D. With a Foreword by James Ewing, M.D. (Pp. 886; 679 figures, including 160 plates, many of which are in colour. 35s. net.) London: D. Appleton-Century Company. 1938.

Practical Pathology, including Morbid Anatomy and Post-mortem Technique. By James Miller, M.D., D.Sc., F.R.C.P.Ed., F.R.C.P., F.R.S.C., and James Davidson, M.B., Ch.B., F.R.C.P.Ed. Third edition. (Pp. 518; 117 illustrations, including 8 coloured plates. 25s. net.) London: A. and C. Black. 1938.

It is not uncommon for books with modest titles to be exceptionally comprehensive, and an example of this is Lawrence W. Smith's and Edwin S. Gault's *Essentials of Pathology*. This is more than an ordinary textbook of general and regional pathology; it is at the same time an atlas of morbid histology, thanks to a profusion of admirable photographic illustrations reproduced on an adequate scale, and it departs from all tradition in this subject by quoting actual case-histories in full and in large numbers. The introduction of this material accounts largely for the formidable size of the book, and although these histories sometimes include features irrelevant to the disease they illustrate, observed either during life or in the

form of incidental post-mortem findings, the space they occupy is justified by their effect in bringing the subject to life. Good teaching in pathology should enable the student to picture the lesions and processes underlying each clinical condition; the more closely pathological and clinical study are linked the better for both, and this volume is an important contribution to that end. As Dr. James Ewing says in a foreword, the method adopted is the one best calculated to take the teaching of pathology out of the realm of abstract philosophy and make it an effective force in the professional equipment of the medical student. It is much to be hoped that its encyclopaedic appearance will not deter the average student from using this work; among the more serious-minded, for whom a book has not to conform to certain limited dimensions, it has an assured future.

Practical Pathology, by Professor James Miller and Dr. James Davidson, is planned somewhat differently from most other books on pathology and its scope and object need to be understood. It is intended as a companion to practical work, whether in a laboratory, post-mortem room, or museum, and is concerned chiefly, although not quite entirely, with the subject of morbid anatomy. Introductory chapters on post-mortem procedure are followed by descriptions of the appearances produced by disease in each organ or system. This purely regional arrangement, though necessitated by the plan of the book, has the usual disadvantage that diseases, such as tuberculosis, which may involve many organs have to be described repeatedly, and tend not to be visualized as a whole. Not only are gross appearances described and freely illustrated, but a short account is given of microscopical structure; the latter is not illustrated, since the student's own slides should be available for this purpose. There are concluding chapters on tumours and on medico-legal post-mortem work, and an appendix mainly on methods, not only histological but bacteriological. The main part of the book is not merely a treatise on morbid anatomy, since something is said about the aetiology of the principal conditions described, and about the disturbances of function in which they result. This is helpful as far as it goes, but it should be borne in mind that this is a practical manual, and cannot besides its proper purpose serve that of a work on general pathology.

ANATOMY OF THE CENTRAL NERVOUS SYSTEM

Practical Neuroanatomy: A Textbook and Guide for the Study of the Form and Structure of the Nervous System. Adapted to the needs of the student and practising physician. By J. H. Globus, B.S., M.D. (Pp. 307; illustrated. 27s.) London: Baillière, Tindall and Cox. 1938.

"The structure of the central nervous system is considered by many a student and teacher as the most intricate and difficult branch of human anatomy." Holding this belief to be unjustified, Dr. Globus has set himself in this book to teach the anatomy of the central nervous system in a simple practical manner, at the same time retaining the student's interest in the subject by keeping in touch with its clinical relationships. The first part of the book only differs from other books on neuro-anatomy in being arranged so that it may be used along with dissections or stained sections of the nervous system. This method of presentation leads to some repetition, which is compensated by omission of many of the complicated details which delight the pure anatomist but which have little clinical correlation. There is little omission of facts which are of practical importance, and many of these are more fully described and illustrated than in the more comprehensive books on neuro-anatomy.

The second part of the book consists of "short résumés and discussions relative to the form, function, and integration of the several divisions of the nervous system." This title is rather more ambitious than seems justified, as the discussion is restricted to the more important clinical aspects of anatomy and physiology; but within its limited field this section is well conceived and should be of great value to the student. The third part consists of drawings in outline on art paper of various sections of the brain and spinal cord. On these the student can sketch in colour the position of the different tracts and nuclei, and thus make his own atlas.

As a practical introduction to the anatomy of the central nervous system the book is excellent, and represents a considerable advance on anything that has previously appeared.

PRACTICAL HAEMATOLOGY

Manuel d'Hématologie Pratique. By Édouard Peyre. Preface by Professor G. Roussy. (Pp. 162; 8 figures. No price given.) Paris: Librairie E. Le François. 1938.

This manual of haematology is intended by the author as a companion volume to *Sérologie Pratique*, which he published two years ago and which was recognized as a very legitimate success by laboratory workers. He wishes to give to these and other readers a description of the principal technique necessary for recognition of the morphological elements of the blood to enable them to make diagnoses and to appreciate the reaction of the organism in relation to different factors normal and pathogenic which are constantly helping to influence the equilibrium. We have read this little book with great pleasure and hasten to congratulate the author. He has written a most useful book. In concise language and attractive form he has set out the essential facts of haematology; an ideal handbook for medical students and busy practitioners. Unfortunately it is not likely to receive much attention in this country, where there are already many similar guides, though none to surpass it in merit.

AN OUTLINE OF CARDIOLOGY

Cardiovascular Disease in General Practice. By Terence East, M.A., D.M., F.R.C.P. (Pp. 206; 43 figures. 10s. 6d. net.) London: H. K. Lewis and Co. 1938.

This book gives a brief but well-balanced outline of views generally accepted in cardiology to-day. In the first half of the book the various kinds of cardiac failure are described, and there is a short chapter on peripheral failure; in the second half the aetiology of heart disease is considered, and this corresponds to the order in which the diagnosis of any cardiac case should be completed. There are also short sections on the effect of other diseases and events on the cardiovascular system, such as anaemia, anaesthesia, athletics, and pregnancy, which should be especially useful. Diseases of the arteries and veins are covered in summary form. The sections on heart failure are written chiefly from a practical point of view, but the theoretical aspects are not omitted and are given space sufficient to make modern views intelligible. The general practitioner will find Dr. Terence East's book a sound and easily read summary of cardiology, enlivened here and there by a light touch, and free from padding but not unduly condensed. The type is very clear, but there are a number of typographical errors.

Notes on Books

The little book, *Yaws* (*Framboesia Tropica*), by Dr. H. D. CHAMBERS (J. and A. Churchill, 5s.), is intended to interest and help all who can assist in the control of what the author considers the second most serious disease of Jamaica. The first part of the book contains chapters on the history, geographical distribution, aetiology, epidemiology, and pathogenesis of the condition. The second part, intended chiefly for sanitary inspectors and nurses, describes the symptoms, course, and diagnosis. The third part deals with the treatment. In an attempt to make it suitable for various classes of reader much has been included that is properly beyond the scope of the lay reader, and matters of interest to the medical reader have had to be omitted. For example, the discussion of the relation of yaws to syphilis follows traditional lines, and does not concern itself with the arguments of the modern controversy. There is, however, in this inexpensive handbook much to stimulate all medical men who are interested in this important condition.

The forty-sixth edition of the *Annual Charities Register and Digest*, for 1939, has been published by the Charity Organization Society in the first week of the year. The subtitle of this valuable reference book describes it as a "classified register of charities in or available for the metropolis," but in fact the scope is much more comprehensive. There is a statistical chapter on the finance of the social services, voluntary and official, a list of addresses of social case-work societies all over the world, and details of more than 2,700 institutions and societies. The index is, as in previous years, particularly full. Copies of the new edition of this carefully compiled directory of charities and public institutions for the service of persons in trouble or need can be obtained from the Charity Organization Society, Denison House, 296, Vauxhall Bridge Road, S.W.1, or from Messrs. Longmans, Green and Co. (cash price 8s. 6d. net in the United Kingdom). An outline of the constitution and method of work of the C.O.S. will be found as usual in the opening pages.

The theme of *Can Psychology Help?* is the adjustment of the individual to his environment both materially and spiritually. The author, Dr. ELEANOR A. MONTGOMERY, argues that psychology—that is, the understanding of the mental mechanisms of the individual—helps towards adjustment and so to happiness. It is pointed out that while the individual must do his best to adjust, he gets some help from his environment, since this is to some extent in tune with the individual. The author summarizes very clearly such matters as the different ways people approach life, in accordance with Jung's functional types and with different temperaments; she then deals with wrong ways of living, such as the anxious and the resistive way, and finally outlines the best way, which she calls the acquiescent way, but which might better be called the co-operative way, pointing out the importance of having a good end in view. This little book, published by Rich and Cowan at 3s. 6d., can be heartily recommended to those who require a simple exposition of the contribution of modern psychology to the art of living.

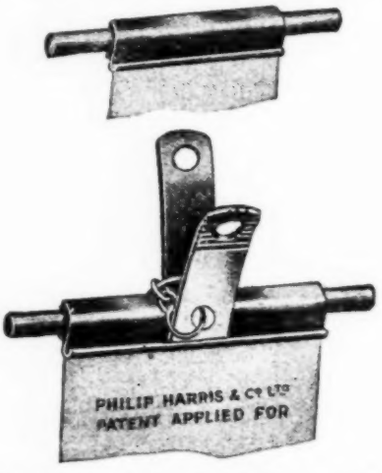
The second edition of *Alcohol and Human Life* (H. K. Lewis and Co., 6s.), by Dr. COURTENAY C. WEEKS, has been considerably enlarged by the addition of new chapters, of which the most important are those on alcohol and road traffic and narcotics and narcosis, as well as by the insertion of much new matter in the chapters on alcohol and medical treatment, the effect of alcohol on the blood and circulation, and alcohol and the nervous system. The value of the work has been greatly increased by the addition of indexes of names and subjects and a bibliography, which were lacking in the first edition.

Preparations and Appliances

CLIPS FOR FRACTURES

Major MEURICE SINCLAIR, C.M.G., M.B. (London, W.1), writes:

These clips have been designed to hold firmly the strips of flannel bandage which support a limb between the side bars of a Thomas's, or any other, skeletal splint. They permit of accurate adjustment, and fix the 2½-inch and 4-inch strips of flannel bandage where they pass round the bars of a Thomas's splint. The lower limb is usually supported and controlled by the 4-inch, and the arm by the 2½-inch clip and bandage, while the lateral pulls can be applied and held to either side-bar of the splint, in order to correct any lateral deviations of the fracture. These clips have several advantages over the metal paper-clips, which were introduced by me during the great



war. (1) The new clips fix the bandages and limb more securely. (2) They are wholly under the control of the surgeon or the staff permitted to attach or remove them, as they require a special lever "key" for their release. (3) A mischievous or mental patient cannot loosen them and consequently disturb his fracture. (4) They throw a minimum shadow on the *x*-ray film, especially in the lateral view, as they are made just a little broader than the side-bars of a Thomas's splint in order to lessen "metal fatigue." (5) Obtained reductions of a fracture are not lost by radiologists or others having to replace the clip by safety pins in order to get a better lateral view of the fragments. (6) Finally they are simpler, more efficient, and neater than the paper-clips, which are now so universally used in all hospitals. These clips have been made for me by Messrs. Philip Harris and Co., 144, Edmund Street, Birmingham.

EPANUTIN

Epanutin (Messrs. Parke, Davis and Co.) is sodium 5:5-diphenyl hydantoinate. Substituted hydantoins of this type have pharmacological actions similar to those of the barbiturates. The drug is of the long-acting type and is recommended for the treatment of epilepsy. The makers claim that the incidence and severity of seizures can be prevented or decreased in a substantial percentage of epileptics, without hypnotic or narcotic effects.

SULPHONAMIDE LOZENGES AND NICOTINIC ACID TABLETS

Sulphonamide-P lozenges (Messrs. Allen and Hanburys Ltd.) each contain 2½ grains sulphanilamide. They are intended for local application by sucking in streptococcal tonsillitis.

Allen and Hanburys have also put on the market nicotinic acid tablets, each containing 50 mg. of nicotinic acid. This substance is now believed to be the anti-pellagra factor of the vitamin B_2 complex, and remarkable results have been obtained with it in the treatment of pellagra.

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ELECTRICAL ACTIVITY OF THE BRAIN

In his Ferrier Lecture, delivered on November 10, 1938, Professor E. D. Adrian gave a fresh and vivid account of the additions which have been made—thanks chiefly to his own studies and those of his pupils—to our knowledge of the electrophysiology of the central nervous system. The early experiments of Fritsch and Hitzig, of Ferrier, and of others consisted chiefly in demarcating the functional areas of the cortex by electrical stimulation, a method which has become a standard adjunct to cerebral surgery. The counterpart to this procedure—observation of the spontaneous or evoked electrical discharges from the brain—is of comparatively recent origin and is beginning to give information, as Professor Adrian explained, about the functions of the sensory and motor cortex. Experiments on animals have shown that the cortex not only produces local electrical responses to stimulation of sense organs, but is also capable of spontaneous rhythmic electrical activity, the form of which is different in the various functional and cyto-architectonic areas. One of the most peculiar characters of some of the spontaneous rhythms is that they are diminished or even abolished by functional activity of the area concerned. Professor Adrian suggests that these spontaneous electrical rhythms are due to synchronization of a group of neurones by some local pace-maker, and that during functional activity the unity is destroyed by mobilization of the separate components of the group for more specialized functions. This phenomenon can easily be recorded in the human brain with the skull intact. The normal alpha rhythm—the ten-per-second occipital discharge sometimes called the "Berger rhythm" after its discoverer—is usually detectable only when the eyes are shut and the mind is at rest, and it is the most prominent feature of the normal human electro-encephalogram, which Professor Adrian has described in another place as "disappointingly constant." This fact, combined with the simplicity of the recording technique (which resembles electrocardiography except that the input voltages are about one hundred times smaller), has induced most electro-encephalographers to study abnormal conditions before the normal have been fully explored, but although physiological principles are still undecided practical applications have been of much value.

There has been some disagreement between the various contributors to this subject, but most of the points of dispute have been unimportant details of interpretation or technique. A recent review by Walter[1] gives a summary of the clinical and physiological problems in which the electroencephalogram has been found useful or interesting. Most of the pioneer work has been done by Berger, but, as Walter points out, his technique was inadequate for location of lesions and his theories of central nervous function seem to have misled him in his interpretation of records from abnormal subjects. The two conditions in which electroencephalography has proved of greatest assistance to the neurologist are cerebral tumour and "idiopathic" epilepsy. Walter,[2 3] working at the Maida Vale Hospital for Nervous Diseases, found that in all but a very few cases tumours which affect the cerebral cortex either directly by infiltration or indirectly by other means can be accurately located by the slow electrical discharges which the affected cortex produces. Location of tumours and abscesses by this method involves no discomfort to the patient (on whose head pad-electrodes are held by a hairdresser's cap) and is completely trustworthy if a definite focal abnormality is found. When the intracranial pressure is grossly raised slow waves may be found over the whole cortex, and this obscures the record, but if the pressure can be reduced by osmotic means the focal discharge due to the tumour is usually found persisting. Even tumours well below the surface may be located by their indirect influence on the cortex, and the presence of tumours in other regions of the brain may be inferred by the production of diffuse slow discharges in the absence of raised intracranial pressure, as the paper by Walter, Griffiths, and Nevin at page 107 of our present issue suggests. It is emphasized that a normal record is not proof of the absence of new growth, since a few cases have been found in which small benign growths were not associated with a discharge of slow waves. The location of cerebral tumours by Walter's method has become a routine at the Maida Vale Hospital, and is now in course of adoption at other centres in this country. It cannot, of course, take the place of neurological examination nor does it supplant the method of air replacement, but it is an invaluable diagnostic aid, particularly when there are strong contraindications to air replacement.

Walter has called the slow waves characteristic of abnormal cortex "delta waves," and apart from

[1] *J. Neurol. Psychiat.*, 1938, **1**, 359
[2] *Lancet*, 1936, **2**, 305.
[3] *Proc. roy. Soc. Med.*, 1937, **30**, 33.

the absence of the normal rhythms, which at best are variable, the production of the slow delta waves seems to be the only electrical way in which the cortex can signal its distress. Golla, Graham, and Walter[4] have found that in the majority of young "idiopathic" epileptics there is a resting focal delta discharge, similar in size to that found in cases of cerebral tumour but more rhythmic. Gibbs, Gibbs, and Lennox[5] in Boston have shown convincingly that an epileptic seizure is invariably accompanied by a very large electrical discharge, the form varying according to whether the case is one of grand mal, petit mal, or psychomotor attacks. These convulsion waves are influenced by drugs just as the seizures themselves are, and the petit mal waves are very sensitive to biochemical influences, but the resting delta foci of Golla, Graham, and Walter are uninfluenced by sedatives in the usual doses. This suggests that the resting delta rhythms may be a sign of the latent "paroxysmal cerebral dysrhythmia," as the Boston workers describe epilepsy. The spread of the dysrhythmia can be controlled by drugs, but the focal abnormality cannot. A great many details are still lacking in the electrical picture of epilepsy, and we are only a little nearer to understanding the true nature of that ancient affliction and no nearer to discovering its cure, but in diagnosis electro-encephalography can be as useful as it is in cases of cerebral tumour. Although there is the same reservation that a negative result is inconclusive, the work which has been continued at the Maida Vale Hospital shows that there is a clear correlation between the electro-encephalogram in epileptics and the nature and character of their fits. Even when a normal resting record is obtained, if a fit can be induced the presence or absence of seizure waves indicates whether the attack is truly epileptic or not. When a delta focus is found it is possible to rule out hysteria as a cause of the attacks and to give a definite prognosis, which is usually so important for those on whom such patients are dependent. This has been found particularly useful in children and young people who have had only a few attacks. Application of the method to other nervous and mental diseases has not so far given very decisive results, partly because observers in different countries do not always agree, partly because the collection of cases of the rarer conditions must take considerable time; but already it is safe to assert that when dealing with a patient in whom any sort of cerebral abnormality is suspected the investigation cannot be considered complete until electro-encephalograms have been taken.

[4] *J. ment. Sci.*, 1937, **83**, 137.
[5] *Brain*, 1937, **60**, 377.

THE TUBERCULOUS CAVITY

It is now well recognized that the presence of cavities in the lung plays a predominant part in determining the fate of sufferers from pulmonary tuberculosis and in deciding what therapeutic measures should be employed. Braeuning,[1] for example, found that about 50 per cent. of the patients were dead after four years when the cavity measured 4 cm. or less in diameter, and that this figure rose to 75 per cent. for cavities measuring 5 to 10 cm. in diameter. New methods of locating cavities accurately are eagerly investigated by those who practise collapse therapy. Nevertheless, there is perhaps some justification for a recent statement that during the past ten years little has been added to our knowledge of tuberculous cavities, especially of the causes and mechanism of spontaneous closure. Caesar divided Gaul into three parts, but schools of thought as a rule conveniently fall into two. And so it is here. One school supports the view of Ameuille[2] that closure of a draining bronchus hampers the healing of cavities, and the other that of Coryllos,[3] who believed that complete closure of these bronchi is the only mechanism by which cavities may heal, whatever their size and whatever the nature of their walls. Objective evidence for Coryllos's theory has so far been scanty. Roberts and Pagel[4] recently described in this *Journal* a case of artificial pneumothorax in which the patient had died from pyopneumothorax after rupture of the lung, and necropsy showed collapse and shrinking of a cavity due to complete obstruction of the draining bronchus. In a fascinating study, based on observations on the living, Coryllos and Ornstein[5] bring forward further evidence in support of the former's conception and add much to our knowledge of "giant" cavities—that is, cavities measuring 8 or more centimetres in diameter. By the introduction into the cavity of a thoracoscope of very fine diameter (cavernoscope) through the chest wall the interior of the cavity can be easily inspected, the pressure in its interior measured, and samples of air taken for analysis. The effect on the draining bronchus of aspirating air from the cavity or of introducing air, saline, or lipiodol into it could also be observed. As the result of these investigations the authors arrived at the following conclusions.

Giant cavities belong to one of two varieties: cavities with positive pressures and cavities with pressures equal to that of the atmosphere. The former—tension cavities—are always spherical and

[1] Prognose der offenen Lungentuberkulose, *Tuberkulose Bibliothek*, 1935, No. 52: *Z. Tuberk.*, 1936, **75**, 516.
[2] *Bull. Mém. Soc. méd. Hôp. Paris*, 1927, **47**, 612.
[3] *Amer. Rev. Tuberc.*, 1933, **28**, 1; 1936, **33**, 639.
[4] *British Medical Journal*, 1938, **2**, 1258.
[5] *Thorac. Surg.*, 1938, **8**, 10.

have thin walls, and the patient's general condition is good, the sputum often being negative. They show marked changes in size, frequently have a fluid level, and may disappear spontaneously, either temporarily or permanently. Cavities with pressures equal to the atmospheric pressure, on the other hand, do not accumulate fluid and do not disappear spontaneously, their walls are more often thick, the sputum is persistently positive, and they resist collapse treatment: they gradually and steadily increase in size by continuous sloughing of the pulmonary parenchyma. One type of cavity may become converted into the other, and such a change may be repeated several times. The difference in the two varieties is explained by variation in the degree of patency of the draining bronchus: partial obstruction of this with valve-action explains the positive pressure and other findings in the tension cavities; wide patency of the bronchus, the atmospheric pressure and other findings in the second variety. It must be stressed that even in the first kind the obstruction is only partial and transient; if it were complete a positive pressure in the cavity would not be possible. When the obstruction is complete the air becomes absorbed from the cavity, leading to its concentric shrinking if the walls permit it, healing being further helped, according to Coryllos and Ornstein, by the anoxaemia in the interior of the cavity, which hinders the multiplication of tubercle bacilli and therefore checks the infiltration around it. The authors emphatically reject the term "blocked cavity" introduced by Salkin, Cadden, and McIndoe[6] as "improper and misleading," since "it indicates only a temporary status of the draining bronchus of the cavity but fails to indicate whether the bronchus is really closed or open, the only factor which regulates the course of these cavities." The term merely designates a temporary phase in the evolution of any tuberculous cavity. The valve-like action of the ending of a bronchus in a cavity, its closure when intracavitary pressure rises, and its opening when the pressure falls are all explained by the facts that bronchi in diseased parenchyma have lesions in all layers, more marked near the cavity, and that the draining bronchus usually enters the cavity obliquely, according to Coryllos and Ornstein, who base these observations on the work of Salkin, Cadden, and McIndoe, and of Ameuille, Delhomme, and Raust.[7] Complete closure would occur as the result of fibrotic changes. Moreover, the patency of the bronchus has an effect on the state of the cavity walls, the appearances of which are not so much due to fibrotic changes as to atelectasis or perifocal infiltration, the latter being dependent on multiplication of bacilli in the cavity and therefore on the oxygen admitted to it.

A highly important conclusion followed from the aspiration of aseptic pus from cavities through the cavernoscope or during re-operation for cavities uncollapsed by previous thoracoplasties. In each specimen of seven patients examined no organism was found other than the tubercle bacillus, which was present in large numbers. Not only were anaerobes absent, but even ordinary pyogenic organisms could not be isolated. These findings cast doubt on the common belief that mixed infection, especially with pyogenic organisms, is present in tuberculous cavities. As this observation appeared to dispose of a serious risk in obliterating the draining bronchus, Coryllos and Ornstein tried to obtain obliteration surgically, especially of cavities in which all other means of collapse had failed. Two different methods were used. Injection into the cavity through the chest wall of different chemical substances, or cauterization of the opening of the draining bronchus with the aid of the cavernoscope, was unsuccessful in each instance, although no untoward effects followed. The second procedure comprised intracavitary transplantation of pedunculated muscular flaps. It was performed in twelve cases. In ten patients the wound closed by primary healing. Of the twelve the sputum became negative in six immediately or shortly after the operation, though it again became positive in one a month later. Four patients died: one three weeks later from acute bronchial obstruction, the second from uraemia due to amyloid nephrosis, the third from contralateral bronchopneumonia. The sputum of the fourth became negative two weeks after operation, and the patient was up and about for four months, and then died from pneumococcal pneumonia in the other lung. A necropsy was carried out on three of the patients. In the patient who died three weeks after operation the flap was in place and no "tuberculization" could be seen; the flap was adherent to the cavity by fibrin, but it could be easily detached. A patient who died four weeks after operation had extensive tuberculization of the flap, which was filling the cavity and was adherent to its walls. In the patient who died four months after operation the flap was not only in place but was completely adherent to the walls of the cavity and was transformed into fibrous tissue; the draining bronchus of the cavity was closed. This patient had had a positive sputum for four years after complete thoracoplasty.

The measures to adopt for large cavities that cannot be dealt with by artificial pneumothorax thus appear more clearly defined. Dr. Nissen points out in this *Journal* on page 100 that the indications for extrapleural pneumothorax are very

[6] *Amer. Rev. Tuberc.*, 1936, **34**, 634.
[7] *Ann. Anat. Path.*, 1936, **13**, 849.

limited. According to Coryllos and Ornstein thoracoplasty with wide apicolysis is the procedure of choice. Supplementary thoracoplasties are successful in one-third of cases. The muscular flap operation has rendered 50 per cent. of patients sputum-negative, but is a procedure still fraught with danger. The method of thoracolysis described by O'Shaughnessy and Mason in this issue (p. 97) would appear to offer a safe and simple alternative to these major interventions in certain patients.

"THE CITADEL": BOOK AND FILM

The award of the highest American honour for a 1938-made film in the English language to the production adapted from Dr. A. J. Cronin's "best seller" has naturally a special interest for the medical profession because of the predominantly medical implications of the plot. Exactly how far, if at all, the author of the book intended his work of fiction to be regarded as a tract has been the subject of widely differing views. The public greedily absorbed the notion, probably fostered by the publisher and his advertising agents, that it was meant as a genuine and savage satire on "Harley Street" and all its ways—by which term they understand the whole body of London consultants, regardless of the fact that the geographical area in question houses types of practitioner as far asunder as the poles in scientific distinction and in devotion to the public weal. The public was probably wrong: just as Dr. Cronin would not pretend to have produced a literary masterpiece or an important work of propaganda. He is first and foremost a story-teller—and at the moment has few superiors in that craft in England; and in *The Citadel* he used his medical training and experience to aid him in telling a story which has had a most remarkable success. Fiction is not evidence on oath; and we cannot demand of a medical novelist that he shall subordinate his plot or his "local colour" to accuracy in matters of detail. The main fault we had to find with this very readable book was the way in which the exceptional was overemphasized so as to make it appear the usual. When the film magnates, in their turn, commission a producer to turn a novel into a talking film, their aim is neither instruction nor political propaganda, but the more commercial aim of amusing and interesting their patrons; these include all classes, and among them the unsophisticated are in an immense majority. It is box-office returns, not art or literature, or education or social betterment, that the film industry is after; whether in the process the public gets right or wrong impressions on this or that subject is of small importance compared with the financial results, which in turn depend on tickling the ears (and eyes) of the groundlings. Thirty years or more ago one remembers that Mr. Somerset Maugham (a medical man) put on the stage a scene in which a young consulting physician in "Harley Street," hard put to it because his practice was very meagre, contemplated scattering orange peel on the pavement outside his rooms in the hope of getting some sprains or broken legs to treat as a result. The playwright, of course, had his tongue in his cheek, as the medical members of his audiences knew, but the rest of the world saw nothing abnormal in the incident. Similarly, the film version of Dr. Cronin's book abounds in glaring and much more serious medical solecisms, which will go unperceived by the laity, though his professional brethren detect them easily enough. The question for us is not whether this film is well produced and well acted, but whether it gives a distorted view of medical life and medical morals, and if so, how far it is calculated to lower our profession in the eyes of the public. Its qualities as a film are a matter for cinema critics; they have been discussed in all the lay papers and do not much concern doctors as doctors. In our view *The Citadel* film, apart from its absurdities, gives a false impression of British medicine and British doctors, which in the long run will do harm unless the public regard it merely as entertainment. Anything that lowers prestige by so much lowers confidence, and confidence is the chief element in the doctor-patient relationship.

YELLOW FEVER BY AIR

It is now common knowledge that aerial transport involves new risks of introducing diseases into areas previously exempt from them, and of these yellow fever is the most feared. The mosquito which conveys it has a very extensive distribution in tropical and subtropical zones, but the disease itself is endemic only in South and Central America and in certain parts of Africa; the danger is that aerial transport, rapidly covering routes which were previously slow or impracticable, may convey the infection to extensive new areas where the necessary vector and a fully susceptible population would ensure its rapid spread. A series of recent official reports appearing together in the same journal[1] reveals in detail the circumstances of this danger and describes the measures being taken to meet it. These are of two principal kinds, since the infection could be conveyed either by mosquitos or by passengers infected before embarkation and developing the disease after arrival. The service of Pan-American Airways between North and South America, which has to guard against conveying yellow fever into the southern States of the U.S.A., has had all its employees on this route immunized, and passengers not so immunized whose destination is in this area are kept under surveillance. Measures to rid the flying-boats of insects are regularly carried out, but one report draws attention to numerous crevices and pockets in the structure of these machines which are apparently liable to escape efficient treatment. The position in Africa is more complex. Here the disease is endemic in parts of the west coast and in an area known to extend across Central Africa into the Sudan. It has not yet reached Kenya, Uganda, the eastern coast generally, or the south, but the vector

[1] *Bull. Off. int. Hyg. publ.*, 1938, **30**, 1970.

Aëdes aegypti exists throughout these regions and as far south as Natal. There are no fewer than seven regular air lines operating between endemic and unaffected areas, while military and private machines, especially those landing elsewhere than at aerodromes where the necessary anti-mosquito precautions are taken, complicate the problem still further. It need scarcely be pointed out that most of these routes were impracticable for rapid travel before the advent of the aeroplane, and the problem to be faced is therefore entirely new. One of the most instructive of these reports describes the methods which have been tried for destroying mosquitos in aeroplanes. In the interests both of efficiency and of the speed of the service destruction of insects is better carried out during flight. Of the factors upon which success depends the human one has been found the most fallible, and an automatic apparatus is strongly recommended. The best form of this hitherto devised is an appliance fitted in each compartment from which the insecticide, containing pyrethrum extract and carbon tetrachloride, is sprayed by a small cylinder of compressed carbon dioxide, like a "sparklet" siphon bulb but somewhat larger. If measures of this kind are successful in confining yellow fever to those parts of Africa in which it is already endemic there will presumably be little danger of its reaching India and the Far East. In those countries, with their vast susceptible populations, the danger, if more remote, is also of far greater magnitude.

INSULIN-LIKE ACTION OF VEGETABLE EXTRACTS

At various times dating from the early days of insulin extracts prepared from the most diverse substances have been reported to possess the property of lowering the blood sugar in animals. Green vegetables, beet, bacteria, yeast, and a host of other materials have been investigated in this connexion. The term "glucokinin" was proposed by Collip long ago for certain extracts of this kind, and without doubt some of them lowered blood sugar. Similarly, the synthetic body deca-methylene diguanidine (synthalin) by mouth resulted in a fall in blood sugar, but toxic effects upon the liver precluded its widespread application, though clinicians reported useful results in a few instances. Obviously a preparation which would be effective in diabetics if given by mouth would be a boon to these patients, though the terrors and inconveniences of the needle may well be exaggerated. Actually the use of the needle becomes a routine matter, and in a little time the patient learns how to put the hypodermic in with no significant pain or loss of time. Nevertheless an effective oral preparation would be most desirable, particularly in contributing to a better frame of mind in diabetics who feel their abnormality more as a result of the ritual of hypodermics, antiseptics, and bottles than they would if a tablet or capsule had to be swallowed. Thus it is interesting to read the recent contribution of MacDonald and Wislicki,[1] who report that extracts of the humble cabbage, relatively easy to prepare, possess a fraction which lowers blood sugar both in the normal rabbit and the depancreatized dog when administered orally. In addition to this hypoglycaemic substance there is a hyperglycaemic substance which appears to be somewhat toxic, raises blood sugar notably, and leads to glycosuria (perhaps by mobilizing liver glycogen); this substance is also effective when taken by mouth. One cannot at this stage draw any conclusions as to the mechanism of action of this hyperglycaemic substance. As to the hypoglycaemic extract, it is effective both by injection and orally; the blood sugar in a fasted rabbit reaches a turning-point in four to five hours, the extract corresponding to 1 kg. of cabbage (by mouth) lowering blood sugar to some 50 to 60 mg. per 100 c.cm. This extract appears to be non-toxic; so far as the reported experiments go no hypoglycaemic convulsions have been produced. If daily doses of extract corresponding to 1 kg. of cabbage are given by mouth the effect of the hypoglycaemic extract on the blood sugar is maintained. In the depancreatized dog the urine could be kept sugar-free and the blood sugar at subthreshold levels by oral dosage of cabbage extract corresponding to 6 kg. of the vegetables. Roughly speaking, the hypoglycaemic extract from 1 kg. of cabbage possesses an activity of between 2 and 3 units of insulin. On this rough estimate the average diabetic would require the extract from some 20 to 25 kg. of cabbage, but, of course, improvements in process and yield would lower this figure. MacDonald and Wislicki state that they are now trying their extracts on diabetics, and doubtless others will by now be doing the same; we must await the results of these trials. No information is given in their paper of the nature of the hypoglycaemic substance (vegulin); it seems, however, unlikely that it is protein in nature. If it indeed proves to be non-protein and its action to be a true stimulation of peripheral oxidation of carbohydrate, then synthesis should not be difficult. But this is being more sanguine than the present evidence would warrant.

[1] *J. Physiol.*, 1938, **94**, 249.

"ANILINE TUMOURS" OF THE BLADDER

Cancer of the bladder has been recognized as an occupational disease of workers in the synthetic aniline dye industry for more than forty years, but until the European War all the cases occurred in Germany and in one district of Switzerland, where the industry was concentrated. With the breakdown of the German monopoly "aniline cancer" made its appearance in other countries, including Great Britain, where the first cases were recorded in 1926. So far about forty cases have been seen in this country. In a comprehensive review of the subject Hueper[1] states that the total in all countries is now about 550, but owing to several factors militating against accurate and complete returns the true number is probably considerably higher. In the United States of America the total is now about 100, the first cases being recorded in 1934, about sixteen

[1] *Arch. Pathol.*, 1938, **25**, 856.

years after the establishment of the synthetic dye industry on a large scale. As with other forms of industrial cancer, the disease commonly appears first after many years of exposure, and its onset may be delayed for years after the worker has left the dangerous employment. The onset is insidious. Severe acute intoxications have not been observed, and the commonest early sign is haematuria. Since the early stages are symptomless the only effective means of early discovery, according to Hueper, is the periodic cystoscopic examination of all workers exposed to risk. This, however, is a counsel of perfection, for it is unlikely that workers would submit to repeated cystoscopy unless they were convinced that the risk of contracting cancer was substantial. With efficient manufacturing methods and stringent precautionary measures the proportion of workers who develop cancer is probably small, though the incidence has varied widely in different factories. It may be necessary, therefore, to defer cystoscopy until the onset of haematuria or other suggestive sign. Treatment is the same as for other bladder tumours, but it has been claimed that the prognosis is better—perhaps on account of earlier diagnosis. The identification of the carcinogenic agent which produces the tumours of the bladder is still uncertain. Suspicion has fallen particularly upon aniline, benzidine, and naphthylamines. Hueper and his colleagues produced carcinomatosis and papillomatosis in the bladder of dogs by means of subcutaneous and oral administration of betanaphthylamine. It is possible, however, that the active agent is not betanaphthylamine but some impurity formed during its manufacture, for it has not been demonstrated satisfactorily that naphthylamines are carcinogenic. Boyland and Brues[2] carried out experiments to determine whether dinaphthylamines or dibenzcarbazoles might be active. They found that 3:4:5:6-dibenzcarbazole was carcinogenic; it gave rise to skin cancer or sarcoma in mice according to the site of application, and, furthermore, acted remotely from the site of application, producing hepatoma. This substance did not produce tumours of the urinary tract in mice, and it has not been demonstrated in the human body, though its formation there is easily credible. In the absence of precise knowledge about the responsible substance prophylactic measures must consist of hygienic precautions of a general kind, and clinical observations suggest that these greatly reduce the incidence of aniline cancer, though they do not abolish it completely.

FLUORIDE POISONING

A review by Dr. K. Roholm of Copenhagen[3] gives an account of recent work which has shown fluorides to constitute a serious menace to health in certain areas. The acute toxic actions produced by fluorides in considerable amounts have long been known, but it has now been discovered that very small quantities of this element can set up chronic poisoning. A condition known as mottled teeth was described in 1916 in Colorado, but its cause was unknown till 1931, when Smith proved it to be due to chronic fluoride poisoning. A recent investigation has shown the occurrence of this condition in 335 places in twenty-five States in the U.S.A. Roholm states that the condition is found in all the continents; in Europe it occurs in Italy, Spain, England, and probably in Holland. The remarkable feature of this poisoning is that it can be caused by a content of fluoride as low as 1 mg./litre in drinking water. In 1932 a more serious form of fluoride poisoning was discovered in a Copenhagen factory where cryolith (Na_3AlF_6) was purified and pulverized. The toxic effect was a new form of osteosclerosis, which *x*-ray examination revealed in fifty-seven out of sixty-eight operatives. Post-mortem examination of the bodies of two who had died of intercurrent diseases showed that the bones were three times the normal weight. Acute forms of fluoride poisoning also have affected stock in various countries in the neighbourhood of superphosphate and aluminium factories. The nature of chronic fluoride intoxication is not known exactly. The bone changes indicate a gross disorder of calcium metabolism. Fluoride is powerfully poisonous to many enzymes, and one of these (which is concerned with deposition of calcium in bones) is inhibited by a concentration of about 1 in 200,000 fluoride. We know now that chronic fluoride poisoning antagonizes vitamin C and can cause scurvy in animals which are on a diet partly deficient in this vitamin. Research in the past few years has therefore indicated a variety of ways in which fluoride poisoning may cause derangements. The facts related show that fluorides are capable of being a menace to health, and it is remarkable that the possibility of small quantities of fluoride causing chronic poisoning should only have been recognized so recently.

[2] *Proc. roy. Soc.*, B, 1937, **122**, 429.
[3] Heffter's *Handb. d. exper. Pharmakologie.* Seventh Supplementary Volume. 1938.

"ARCHIVES OF DISEASE IN CHILDHOOD"

With the December, 1938, issue of the *Archives of Disease in Childhood* there comes to conclusion the thirteenth volume and also the services of Dr. Charles F. Harris as one of the honorary editors. Dr. Harris in 1934 succeeded the original editors (Dr. Hugh Thursfield and Dr. Reginald Miller), and he not only successfully continued the policy so well established by these pioneers but he introduced many improvements. For five years Dr. Harris has rendered splendid service to the cause of paediatrics as joint editor with Dr. Alan Moncrieff. For 1939 the two honorary editors of the *Archives* will be Dr. Moncrieff and Dr. R. W. B. Ellis, with Dr. A. Franklin as assistant editor.

The Hunterian Oration will be given before the Royal College of Surgeons of England by Mr. W. Sampson Handley on Tuesday, February 14, at 4 o'clock; and on the same evening there will be a commemorative dinner in the College.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

ACUTE RETENTION OF URINE

BY

R. OGIER WARD, M.Ch., F.R.C.S.

Acute complete retention of urine is a condition so obvious to the patient that there is no delay in seeking medical attention. The commonest causes in the male are urethral stricture and enlarged prostate, but there are others, and a diagnosis must be made before the appropriate treatment can be undertaken. In many instances little can be learnt from the history, because the patient is in too much distress to give a clear account of previous symptoms.

A man aged 76 had acute retention of urine. He could not remember ever to have suffered from trouble in micturition, except during a urethral infection fifty years previously. The prostate was nodular, hard, and fixed, due probably to carcinoma, and this seemed the obvious cause of the retention. But a catheter of usual size failed to enter the bladder, and so did other instruments until a bougie, size 6 Charrière (2 English), was passed through a tight stricture in the bulb, being arrested in the posterior urethra. A size 7 (Charrière) coudé catheter was then successfully introduced and tied in, thus relieving the retention. Subsequent dilatation of the stricture gave the necessary relief, and no treatment of the prostate was undertaken.

In acute cases it is often necessary to do without medical history and to depend upon the results of clinical examination. These are usually quite characteristic. Frequently the bladder is to be seen as a prominent tumour in the lower abdomen, but if it is not visible its presence is best detected by careful palpation with the whole palm of the hand, and for this purpose the patient should lie on his back with the knees slightly drawn up to give abdominal relaxation. Percussion, though useful, is a less certain means of determining the extent of the tumour. A rectal examination should next be made, and if the prostate is a large one, or if a prostatic abscess should be present, the cause of the obstruction is usually obvious. In many cases, however, the distension of the bladder makes it difficult to ascertain the size of the gland, and bimanual examination, the most accurate means of estimating this, is of course impossible. It follows that a diagnosis of the cause of the retention of urine, and therefore also the treatment required, is still in doubt, and meanwhile the patient anxiously demands relief. It is necessary to attempt the *passage of a catheter*, a procedure which in such instances should always be regarded as an exploration of the urethra, since unexpected difficulties may be encountered. Instrumentation may be most usefully begun with an 18 Charrière (10 English) silk web coudé catheter, since this is rarely too big for the normal adult urethra and will usually pass in cases of enlarged prostate. If the passage is arrested the point at which this occurs must be noted, since it gives clear evidence of the position of the obstruction and therefore of its probable nature.

A man aged 70 had acute retention of urine. There had been slightly increasing trouble with micturition for the previous month. Catheterization was difficult, but eventually was successful, and the bladder was emptied. There was no stricture and no enlargement of the prostate. Further attacks of retention supervened. On the third occasion of passing an instrument the point of it was felt momentarily to be held up in the prostatic urethra in an unusual manner, and a firm push was necessary to get it into the bladder. A calculus impacted in this portion of the urethra was suspected, proved by posterior urethroscopy, and treated by litholapaxy.

Retention due to Stricture

When the urethra is thus explored in cases of retention of urine, if the instrument is arrested in the bulbous part of the urethra the most likely cause is stricture. When a stricture has been diagnosed it is of course futile to make further attempts with a catheter of ordinary dimensions. Silk web bougies of various sizes should be tried, using in the first instance a small one of, say, 10 Charrière (5 English) size, then trying a No. 6 Charrière (2 English). If these will not pass a very small or filiform bougie must be employed. A minute instrument of this sort is more likely to pass if the point of it is twisted into a corkscrew form. If this is the only instrument that can be introduced it should not be withdrawn, but be tied in position by means of strong threads around it at the external meatus, the threads being brought back along the penis and held by elastoplast. It can safely be left in the urethra, as urine will trickle away continuously alongside it. In forty-eight hours it may be withdrawn, when it will be found that the patient is able to pass urine. Intermittent dilatation with bougies can then be undertaken, or, if preferred, a small catheter is inserted to provide drainage and larger sizes are substituted later. The silver catheters of very small size such as Nos. 2 and 3 English, which are always included in the sets of these instruments, are rarely required. While occasionally useful in cases of stricture, they must always be handled with the greatest care lest a false passage be made, an accident which is not only dangerous but which inevitably renders subsequent instrumentation more difficult.

If the exploring instrument of moderate size passes easily through the bulb of the urethra stricture is excluded as the cause of the retention of urine. A little further along the urethra the point of the catheter is, however, often held up by spasm of the compressor urethrae. A pause should always be made at this point, and in the majority of cases the muscle will relax after a moment and allow the instrument to pass into the prostatic urethra. Sometimes the placing of two fingers in the perineum will help by supporting the bulb and ensuring that the tip of the catheter is in good apposition to the entrance to the membranous urethra.

Retention due to Prostatic Obstruction

Instances of foreign bodies in the posterior urethra, such as the case of calculus quoted, are rare. Far the commonest cause of obstruction in this portion of the urinary tract is, of course, an enlargement of the prostate, of either a benign or a malignant type. If a silk web coudé catheter is habitually employed in such cases when retention of urine is present it will usually pass the obstructing prostate and successfully enter the bladder. Rubber catheters, particularly those of the modern type with thin walls and a terminal opening, known as "flute-tipped," are also useful in dealing with cases of prostatic enlargement, and so are those which have an olivary point (Tiemann's); but, being flexible, they are not so well suited when acute retention exists, in which, as

has been said, the first instrumentation must always be regarded as an exploration of the urethra. Moreover, spasm of the compressor urethrae not infrequently makes the passage of any rubber catheter a matter of difficulty. In a certain proportion of cases of acute or of chronic retention of urine due to benign enlargement of the prostate the coudé catheter will fail. The bi-coudé catheter may then be tried, but because it has a double bend it is not always an easy instrument to introduce. A better plan is to employ a stylet. For this purpose a silk web coudé catheter should be softened in warm lotion and then threaded over the stylet, making sure that the point of the latter does not project through the terminal eye. With the opposite end of the catheter and the stylet firmly held between the fingers and thumb of the right hand, the instrument is passed along the urethra just as if it were a silver catheter, past the compressor muscle, and into the prostatic urethra until the point of it is arrested there. At this moment the stylet is slightly withdrawn and synchronously the catheter is pushed forward with the left hand. The effect of this manœuvre, as anyone can easily demonstrate for himself with the instruments alone, is to bend the end of the catheter sharply upwards towards the symphysis pubis, thus enabling it to slide past the overhanging intravesical projection of the prostate into the bladder. The stylet is then withdrawn and the urine promptly flows out. If this method is used failure to relieve retention of urine by catheterization will rarely occur when the cause is enlargement of the prostate of either a benign or a malignant nature. When a coudé catheter, but no stylet, is available and difficulty is met with, another measure of great value is, after the catheter has entered the posterior urethra, to introduce a finger of the right hand into the rectum as far as it will go. The rectal surface of the prostate and catheter should then be pressed firmly towards the symphysis pubis, while the instrument is pushed gently inwards with the left hand.

Unsuccessful attempts at instrumentation not infrequently produce haemorrhage, and blood clot may obstruct the catheter when ultimately this has been successfully introduced; for this reason a powerful syringe and some lotion should always be available to clear it. A silver catheter (No. 12 English) of unusual length may sometimes be used, but it has no advantages over the methods already described, except that the lumen of such an instrument is larger than the silk web catheters commonly employed. But however much care is employed, and even if every type of instrument is available, there will always be a few instances of retention of urine in which immediate instrumentation fails. This may be due to the intolerance of the patient. It is more likely to occur in cases of very tight strictures than in prostatic disease. In such conditions an anaesthetic is desirable, and it will often be found that when the patient is fully relaxed an instrument passes into the bladder, though it should be remembered that this is more easily effected on an operating table than on a bed. If the cause of retention is a benign prostatic enlargement catheterization should always be successful under an anaesthetic, and also in most cases of carcinoma. When dealing with stricture persistent endeavours with instruments of various sizes will also usually meet with success if the patient is anaesthetized.

Cystotomy

If the case is of such difficulty that anaesthesia is necessary the surgeon should always be prepared to perform cystotomy.

For this operation the patient should be slightly tilted into the Trendelenburg position. An incision beginning immediately above the symphysis pubis and extending upwards for about two inches is sufficient, unless the patient is unusually fat. Retractors are inserted and the rectus sheath incised in, or close to, the middle line for the same length as the skin incision. This exposes the rectus muscle of one side and often the pyramidalis. The rectus can be retracted outwards or the incision can be continued through its fibres. In this part of the abdominal wall there is no posterior rectus sheath, and the next layer exposed is the transversalis fascia. This varies considerably in density, and is sometimes so thin that it may escape recognition; or it may be very dense and require considerable dissection to free it from the bladder beneath. After it is opened vertically and has been drawn away by the retractor on either side the bladder often becomes visible, but sometimes a dissection must be made through the layer of fat which covers it. This is best done by snipping transversely with scissors, the assistant using a piece of gauze to retract the peritoneum upwards and thus protect it from injury. The bladder wall is recognized by its pale yellow colour, its characteristic musculature, and the presence of veins upon its surface; these should be seen, and be avoided. The bladder wall should be picked up at two points with tissue forceps or with sutures before it is incised. A tube, preferably one of the self-retaining types such as a de Pezzer, and of about size 26 Charrière (15 English), must be at hand so that it can be introduced immediately the urine begins to escape, and before the bladder tends to retract.

If one of these special bladder tubes is not available a piece of rubber drainage tube must be used. It should be about half an inch in diameter, the length varying from three to five inches according to the thickness of the abdominal wall. Two eyes should be cut in it close to one end. The tube should project into the bladder cavity for about one and a half inches, but should not reach down to the internal urinary meatus or press upon the bladder base. It may be necessary to suture the bladder wall around it if a large opening has been made—plain catgut, not chromicized, being used for that purpose. The bladder is then allowed to drop back into the pelvis. The incision in the abdominal wall is closed by interrupted sutures which pick up the recti muscles as well as their sheaths. If the urine is septic a small piece of corrugated rubber should be inserted between the muscles to drain the prevesical space; indeed, this is a useful precaution against leakage in every case. In closing the skin wound one suture should always transfix the tube, even if it is of the self-retaining type. Before the patient leaves the table the tube should be syringed, to ensure that it is clear of blood clot and provides free drainage. The urine is led away into a urinal in the bed, or to a bottle beside it, by means of a further length of tubing and a glass connexion. This is better than employing a Hamilton Irving box.

COMPLICATIONS

Such is the standard method of performing cystotomy, and the difficulties of the operation are few provided the operator proceeds deliberately. Possible complications are bleeding from some big vessel on the surface of the bladder; this should be picked up and ligatured before proceeding further. Another is the risk that the opening made into the bladder, though large enough to allow the urine to escape, is not adequate to admit the cystotomy tube. This is particularly likely to happen when the wall is much hypertrophied and the exposure imperfect. In these conditions, if the bladder is not held by forceps or by sutures it may rapidly empty and drop down into the bottom of the pelvis, where it is difficult to find. Should this happen the abdominal incision must be enlarged, the patient being tilted still further and a deliberate search made for the bladder. The peritoneum is unlikely to be opened if the operation is performed in the manner described. If, however, this should occur no harm is done so long as the damage is recognized and the tear carefully repaired.

Special instruments such as Morson's and Kidd's trocars are sometimes used for cystotomy, the object being to introduce a tube with the minimum loss of fluid, this being particularly desirable in cystotomy in chronic retention. A Malécot tube held on an introducer is passed through the trocar into the bladder cavity and the latter is withdrawn over it. These are useful instruments, but should not be employed without carefully exposing the bladder, the wall of which should also be secured by forceps. In the absence of these precautions there is a real risk that the bladder will only be punctured, or that if the thrust is particularly forceful the point may enter an intravesical enlargement of the prostate, if this be of considerable size, and severe bleeding result.

After-treatment.—Diuresis should be established as soon as possible; the tube should be syringed out at least twice in the twenty-four hours, and urinary antiseptics prescribed.

RUPTURE OF URETHRA

Retention of urine due to rupture of the urethra unfortunately is often not recognized until extravasation of urine has occurred. If the urethra is only partially torn a catheter may pass, but usually this is impossible. Cystotomy should therefore be performed at the earliest possible moment.

CLOT RETENTION

Acute retention of urine and blood, or clot retention, may result from a bladder growth, either innocent or malignant, or bleeding from an enlarged prostate. It also complicates prostatic operations. Sometimes the bladder may be emptied by syringing and aspirating through a large catheter or the cannula of a Bigelow's evacuator. This is best done in an operating theatre, for often cystotomy or the reopening of the bladder wound is necessary, a procedure which should not be too long postponed. Usually the drainage thus provided is all that is required, but special treatment of the source of haemorrhage may be called for, and all arrangements for this should be made beforehand.

THE MENTAL HEALTH SERVICES

THREE-DAY NATIONAL CONFERENCE

A Conference on Mental Health, arranged by the National Council for Mental Hygiene, was held at Westminster from January 12 to 14. It was described as the fifth biennial conference, but in fact the previous conference was held in January, 1936. Delegates from local education authorities and from authorities under the Lunacy and Mental Treatment Acts and the Mental Deficiency Acts attended from many parts of Great Britain and Northern Ireland. The proceedings were opened by the DUKE OF KENT, president of the National Council, who said that that body was trying to awaken a "mental health conscience" in the nation. The question of whether the national intelligence was declining—the subject of discussion at one of the sessions—was, said His Royal Highness, not prompted by sensational headlines in irresponsible newspapers, but a subject on which a number of highly important individual points had to be considered in their true perspective. Mr. ROBERT BERNAYS, M.P., brought the good wishes of the Ministry of Health, and, referring to another subject down for discussion, said that he regarded the organization and staffing of out-patient mental clinics as a vital part of the machinery for early mental treatment. Another subject to which two sessions were allotted, that of the psychological factor in sexual delinquency and the problems of adolescent instability, had a special interest at the moment, said Mr. Bernays, in view of the Criminal Justice Bill, which sought to ensure that all delinquents suffering from mental abnormality which required treatment could obtain it.

Mental Defectives and Sterilization

The first session was devoted to the question of the possibility of a declining national intelligence. It was opened by Dr. LIONEL PENROSE (Royal Eastern Counties' Institution, Colchester), who said that the consequence of persistent differential fertility favouring a lower intelligence level would appear to be a steady decline in average intelligence of the community. This consequence was inevitable just in so far as intelligence was inherited. The assumption was that the genetic factors which produced mental ability of a high standard would become rarer. The present rate of decline due to genetic changes had been estimated as of the order of one point in the intelligence quotient (or 1 per cent.) every ten years. But, for reasons which he gave, Dr. Penrose thought the arguments in favour of a precipitate decline were fallacious. In his view, if conditions continued as they were at present the end-result of the differential fertility would be to produce a population with an average intelligence quotient scarcely below that which now exists in rural districts. (In rural districts the average intelligence quotient is reckoned at about 95 on the Binet scale, as compared with 100, or slightly over, in towns.) Direct proof of the lowering of average intelligence in this country was lacking, but there was a large amount of indirect evidence which pointed to an unfavourable genetic position from the point of view of national intelligence in the future.

Turning to the possibility of exterminating the mental defective by sterilization, he said that the hope of doing so was damped by the knowledge that nine-tenths of the parents of defectives possessed a degree of intelligence within the limits of normal. If borderline cases were counted as defectives the prospects, in theory, were more hopeful, but the difficulty was that borderline cases were numerous, and it was not possible to draw a sharp line with normals on the one side and borderline cases on the other. "Mental ability is a graded character, but sterilization is not a graded process." Mr. ALEC RODGER (National Institute of Industrial Psychology) declared that sterilization would be not only an inefficient but socially a most undesirable instrument for dealing on a large scale with the problem. "Is it idle to suggest that part of its attraction lies in the fact that it has an odour of scientific sanctity, and at the same time offers us, in sinister fashion, relief from certain of our own social responsibilities?" Before ambitious eugenic programmes were embarked upon, supported by a defeatism which was out of place in a genuine democracy, we should see what could be done to improve the lot of the less intelligent members of the community. The compilation of the national register, if it were carried out scientifically, might be an audit of national ability. The subject was tackled from the educational point of view by Principal J. H. NICHOLSON (University College, Hull), who suggested that we had by no means as yet devised the perfect system of selecting those whose intelligence warrants higher education.

Should Mental Treatment be Practised Solely by Medical Practitioners?

A sharper issue was presented at the second session, when the question was debated as to whether or no mental treatment should be given only by members of the medical profession. The Rev. F. E. ENGLAND (Extension Lecturer in Philosophy and Psychology, University of London) paid tribute to the work done by psychiatrists and medical psychologists, but thought there were two reasons why it was undesirable to leave psychological treatment entirely to them. The first was the practical consideration that

medical psychologists were not available for the vast proportion of psychological ills. The second was that there were certain types of mental illness with which the medical psychologist as such was inadequately equipped to deal. Dr. England complained that the exponents of medical psychology were too often working with an inadequate philosophy of life, so that they inevitably failed to handle aright the ethical and religious implications of their patients' experiences. Such a therapist was content if the patient was freed from his conflict, regardless of the consideration that such freedom might be purchased at the price of spiritual insensitiveness. On the other hand, the clergyman, who was trained in the intricacies of ethics and theology, should be able to go far beyond the most skilled medical psychologist in that supremely important step in psychotherapy—the adjustment of the patient to his widest environment. At the same time Dr. England admitted that as yet few of the clergy were fully equipped to take their share in the healing of the mind.

Dr. R. G. GORDON (chairman of the Mental Health Committee of the British Medical Association), in speaking from the opposite point of view, stressed some practical difficulties. The lay psychotherapist, he said, if left uncontrolled and unsupervised, might do a great deal of good in many cases, but sooner or later he would make a bad mistake. The mentally ill patient would no doubt be prepared to take the risk, but he could not expect his doctor to look on with equanimity, recognizing, as the doctor did, the risk which was being run. Dr. England would reply that there were far more cases demanding treatment than doctors could undertake—"therefore we will leave the diagnosis to you, and work under your direction and help you in the great work of treatment." Some time or other that was the solution which would evolve. A patient would go to a doctor for diagnosis, and when it had been determined that he was a suitable case for psychotherapy he would be handed to an appropriate person to carry on the treatment, and the latter would either bring it to a successful issue or, coming upon a difficulty, would again consult with the doctor. But meanwhile there was the difficulty in which the doctor stood in referring a patient to a layman for treatment—that he might be charged before the General Medical Council for "covering." The analogy of cases referred by the doctor to the masseuse might be cited, but there were fundamental differences. In the case of the mental patient one of the most essential features of treatment was relationship with the therapist. Further, the training of psychotherapists who wished to work in conjunction with and under the supervision of doctors must be regarded as essentially within the medical field and yet extending into the fields of education, philosophy, and possibly religion, in none of which was there a basis of concrete and agreed opinion as there was in physical medicine, which was the background of the training of the masseuse.

"While no doubt the time will come when a body of non-medical psychotherapists will work most successfully in conjunction with and under the supervision of medical psychiatrists, that time is not yet, and it would be better, even though the demand already seems insistent, in the interests of patients, intending psychotherapists, and the medical profession, to move slowly and cautiously."

In the rather desultory discussion which followed, the point of view was put forward by more than one woman speaker that it was easier for the lay analyst to get the necessary training in psychiatry than for the busy general practitioner. A clerical representative of the Guild of Pastoral Psychotherapy said that the Church must develop her own training ground for her priests and parsons with a view to preventing people from becoming mental patients. Others mentioned groups of clergy and doctors in various parts of the country which were discussing this question and had formulated memorandums which had been sent to the Church of England Commission on the Training of the Clergy. Dr. ETHEL DUKES described the careful use of trained lay workers at the Institute of Child Psychology.

Problems of Delinquency

Two sessions were devoted to juvenile delinquency, one of them in relation to sex. The chairman at the first session, Sir ALEXANDER MAXWELL (Under-Secretary of State for Home Affairs), pointed out the provisions of the Criminal Justice Bill, which are directed to giving the courts improved facilities for dealing with cases requiring treatment. Dr. W. R. D. FAIRBAIRN (former Lecturer in Psychology and Psychiatry at Edinburgh) gave what amounted to a lecture on the psychological approach to the problems of sexual delinquency. He described such delinquency as due to the persistence of infantile sexual trends, to an infantile attitude towards sexual objects, and to a sadistic type of sexuality acquired in infancy. He was followed by Dr. G. DE M. RUDOLF (honorary psychotherapist, West End Hospital for Nervous Diseases), who spoke of mental deficiency as a fertile cause of sexual delinquency. Defectives by reason of their low intelligence probably comparatively seldom escaped the consequences of their crimes, more especially sexual ones. In a recent year the ratio of convictions for sexual offences to total convictions in the general population was 1 to 223, but among mental defectives it was 1 to 4. He hoped that when the new Bill was on the statute book courts would arrange for sexual offenders to be examined psychologically: first, to separate the defectives from the remainder, and, secondly, to determine which of the offenders of average intelligence were likely to improve under psychotherapy. The matter was urgent, as nearly 4,000 persons were convicted of sexual offences in a year.

In the ensuing discussion it was suggested that crimes of incest were much more frequent than was supposed. Dr. MARGARET LOWENFELD said that in some cases of juvenile sexual delinquency it was shown that the offender, especially when he had come from an institution and had had no parental guidance, had fallen into homosexual practices in complete ignorance of sex, or sex differentiation, and the nature of the act.

A later session was addressed by three medical directors of child guidance clinics. Dr. WILLIAM MOODIE said that about 65 per cent. of the delinquents referred to the London Child Guidance Clinic were from homes which were lacking in stability. When the home was violently disrupted the child did not tend to display guilt or emotion, but to revel in his misdeeds. Dr. EMANUEL MILLER described the "normal criminal," who needed careful psychological handling if he was to be reconditioned. Dr. W. PATERSON BROWN said that a parent's neurosis lay at the root of the mismanagement of many children. Dr. DRUMMOND SHIELS (medical secretary, British Social Hygiene Council) said that the keynote of the whole subject was home conditions. The broken home, the home where the parents were not on good terms and where the child might be torn between divided loyalties, produced instability. The results emerged most obviously between the ages of 12 and 16.

Out-patient Mental Treatment Clinics

A discussion on the organization and staffing of out-patient mental treatment clinics was presided over by Sir LAURENCE BROCK (chairman of the Board of Control). Dr. W. J. T. KIMBER (medical superintendent, Hill End Hospital and Clinic, St. Albans) described the work of his out-patient clinic, which is attached to a mental hospital of the Hertfordshire County Council. The staff consists of visiting part-time psychiatrists and psychologists, who are paid for their services on a sessional basis and who also engage in private practice. Dr. Kimber said that one of the vital points in the clinic procedure was an initial conference about the case, following a preliminary

FIG. 1.—Case I. Tomogram showing large cavity system in left middle zone.

FIG. 2.—Case I. Tomogram showing healed lung fifteen months after thoracolysis.

FIG. 3.—Case I. Radiograph showing minimal diminution in capacity of hemithorax after thoracolysis.

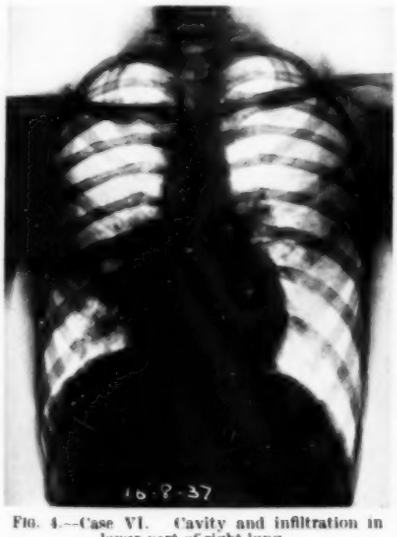


FIG. 4.—Case VI. Cavity and infiltration in lower part of right lung.

FIG. 5.—Case VI. Tomogram before thoracolysis.

FIG. 6.—Case VI. Tomogram six months after thoracolysis, showing disappearance of cavity.

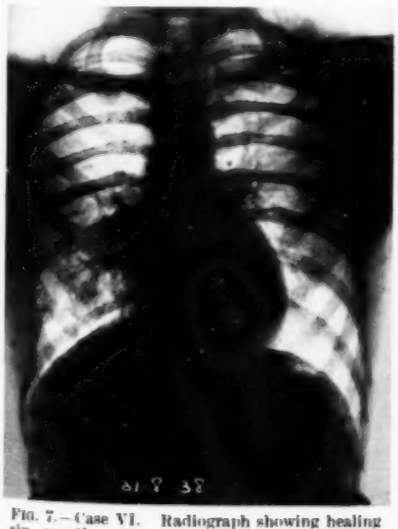


FIG. 7.—Case VI. Radiograph showing healing six months after thoracolysis: very slight diminution in capacity of hemithorax.

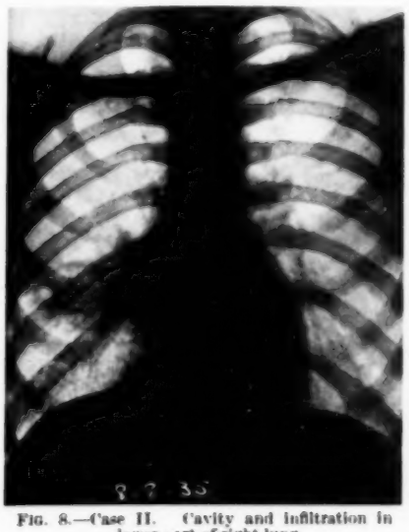


FIG. 8.—Case II. Cavity and infiltration in lower part of right lung.

FIG. 9.—Case II. Soundly healed, nineteen months after thoracolysis.

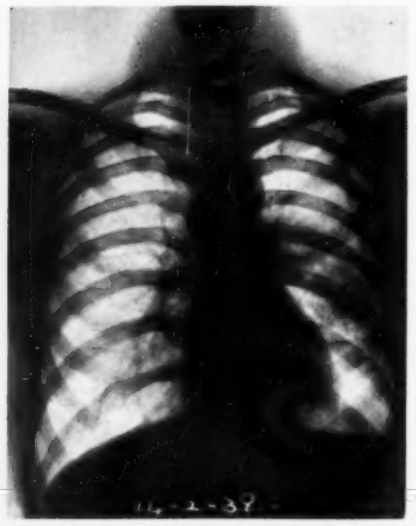


FIG. 10.—Case VII. Cavity system in lower middle zone of left lung.

FIG. 11.—Case VII. Oblique view indicating left paravertebral localization of disease.

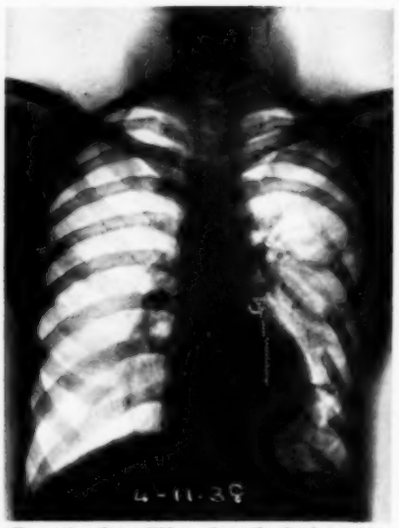


FIG. 12.—Case VII. Soundly healed, eight months after thoracolysis, without marked diminution in capacity of hemithorax.

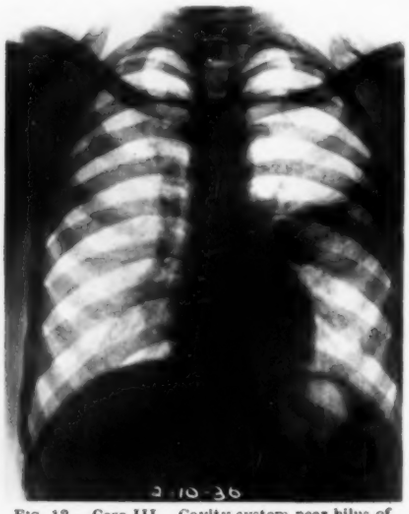


FIG. 13.—Case III. Cavity system near hilus of left lung.

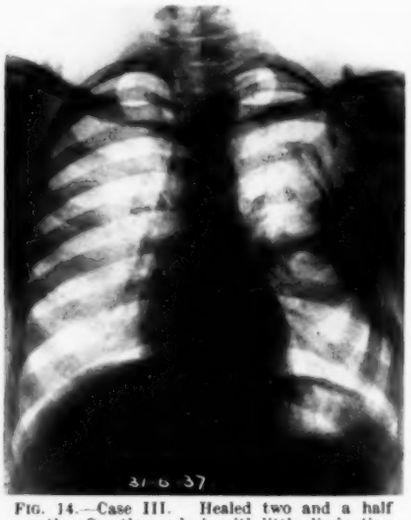


FIG. 14.—Case III. Healed two and a half months after thoracolysis with little diminution in capacity of hemithorax.

FIG. 15.—Case VIII. Large cavity localized in the right paravertebral region before thoracolysis

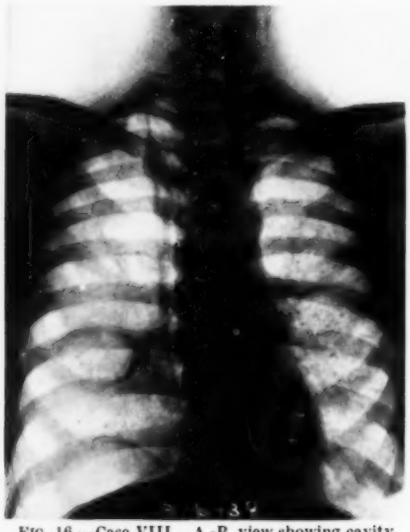


FIG. 16.—Case VIII. A.-P. view showing cavity before thoracolysis (unsuccessful artificial pneumothorax still present).

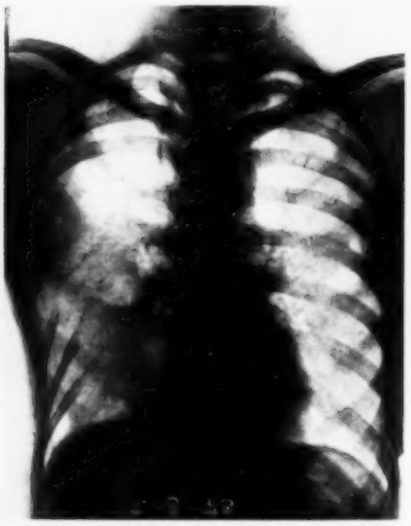


FIG. 17.—Case VIII. Cavity healing one month after thoracolysis.

FIG. 18.—Case VIII. Cavity completely healed three months after thoracolysis, with minimal diminution in capacity of hemithorax.

H. J. SEDDON: INGUINAL LYMPH GLAND BIOPSY IN DIAGNOSIS OF TUBERCULOUS DISEASE OF KNEE

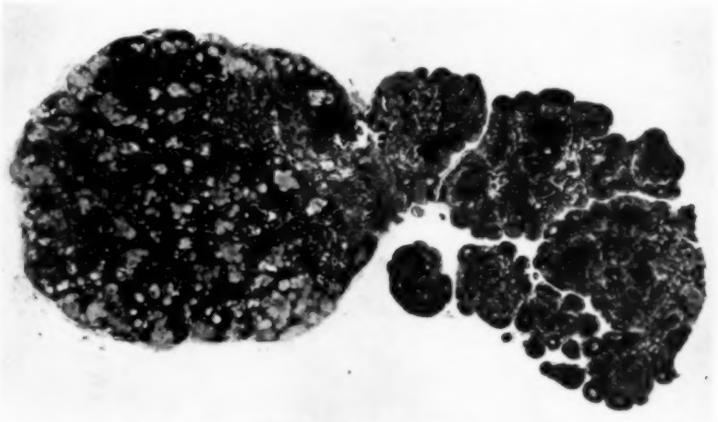


FIG. 1.—Gland from Case 16. All the tubercles are confined to the half of the gland shown on the left. If sections had been made of the right half only it is possible that the tubercles would have been missed entirely.

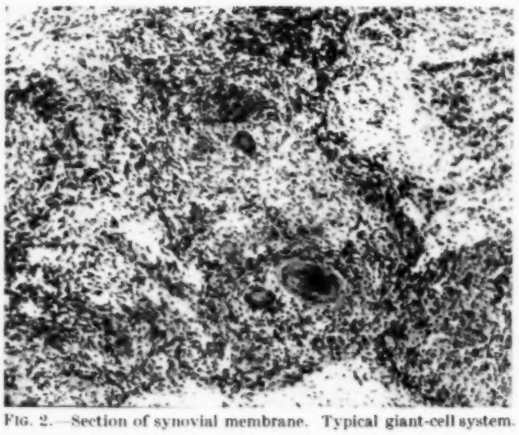


FIG. 2.—Section of synovial membrane. Typical giant-cell system.

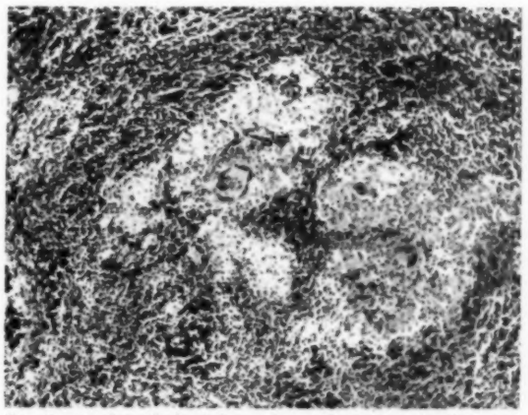


FIG. 3.—Section of gland from groin. Typical giant-cell system

W. GREY WALTER, G. M. GRIFFITHS, AND S. NEVIN: ELECTRO-ENCEPHALOGRAM IN A CASE OF PATHOLOGICAL SLEEP DUE TO HYPOTHALAMIC TUMOUR

FIG. 1.—Showing extent of tumour at level of mammillary bodies, and the distortion of the mammillary body of the opposite side (Weil).

FIG. 2.—General appearance of the tumour.

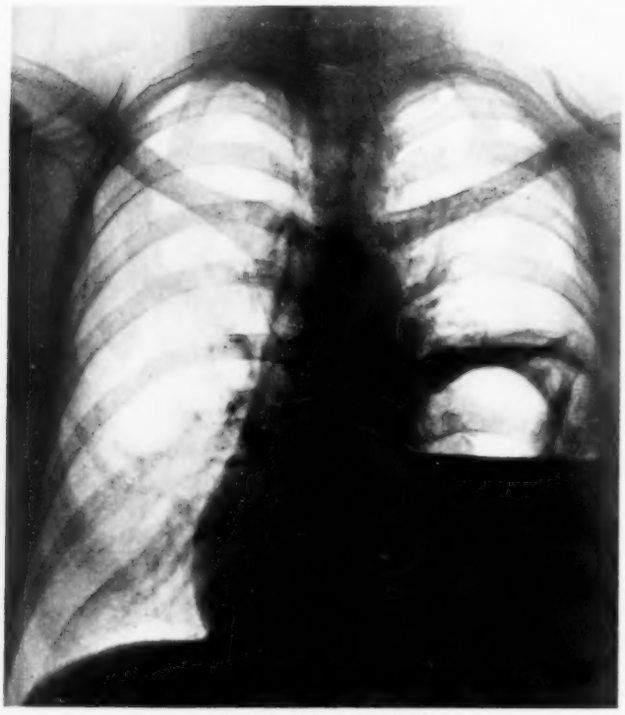


FIG. 1.—A.-P. view of the chest after the meal.

FIG. 2.—After two mouthfuls of barium meal, showing the oesophagus, the cardia, and the inverted position of the stomach and the gas bubble.

FIG. 3.—The filled stomach in the Trendelenburg and left anterior oblique positions. The arrow points to the probable position of the pylorus.

FIG. 4.—Three hours later; the stomach is still nearly full. Normal emptying time is two hours.

examination of the patient; in such a conference the whole team participated, and a line of treatment was decided on and a regime laid down. As to the situation of the clinic, he did not think it mattered whether it was at a general or a mental hospital; what was more important was the nature of the accommodation, which should be cheerful, not "coldly antiseptic." A close liaison should exist between the mental hospital clinic and the neighbouring general hospital.

Dr. DORIS ODLUM (joint honorary secretary, National Council for Mental Hygiene) said that since the passage of the Mental Treatment Act, 1930, which enabled local authorities to make provision for the out-patient treatment of incipient mental illness, some 167 such clinics had been established, most of them in connexion with the mental hospitals. She laid down as maxims of first importance that such clinics should ideally be linked up with both the mental hospital and the general (voluntary or municipal) hospital, and wherever possible the medical staff of the clinic should be drawn from both doctors associated with the mental hospital and doctors engaged in private practice outside. Continuity in personnel during treatment was important. It was advantageous to have doctors of both sexes. Many women patients, especially those experiencing sex difficulties, found it not easy to talk freely to a male doctor; some children preferred a woman, as did a certain proportion of men, who were afraid of appearing weak or foolish in the eyes of their own sex. From the evidence given to the Feversham Committee it would appear that the general hospital was judged to be more suitable than the mental hospital for the purposes of the clinic. As illustrating the need for such clinics even in well-to-do areas, she mentioned that in Bournemouth more than 1,600 cases had been referred to the out-patient department for functional nervous disorders, which was started by the voluntary hospital in 1928. More than 140 doctors had referred the cases.

Miss ELIZABETH MARTLAND (Oldham Council for Mental Health) referred to "queer things which happen at some clinics"—the patients sitting in a row outside the consulting room, examining each other's cards and case-sheets and enjoying a cosy lugubrious chat! In some places unbalanced patients might be given a month's supply of a drug to take away in order to avoid return visits. Dr. HELEN BOYLE (president-elect, Royal Medico-Psychological Association) referred to the naming of such clinics. It was important that the name should be understood and convey no depressing connotation. "Neuro" had been suggested, but it seemed to her a little truncated. At Hove the name was "The Nervous Clinic." She also thought that an out-patient clinic would be incomplete and its work in a measure spoiled if there were no beds, but these should be entirely separated from the mental hospital and even from the Board of Control. Dr. G. DE M. RUDOLF referred to the antipathy to the word "mental." "At any rate he is not 'mental,' doctor," was the frequent remark of a relative. He had not at first appreciated how many people there were in the world who would not attend any institution, clinic, or doctor connected with a mental hospital. Dr. F. BACK (Sunderland Mental Hospital) spoke of the work of the out-patient department which had been located at the general hospital for the last thirteen years; to this had recently been added child guidance work. Dr. E. F. SKINNER (Sheffield) was describing routine at his clinic sessions when he was asked by Sir Laurence Brock whether the students whom he had mentioned took any part in the work of the clinic. He replied that he allowed his students who were attached to him as medical clerks to attend the clinic and listen to the preliminary examination of the patient, but they did not take any part in the actual psychotherapy.

Mental Hygiene and the Press

The influence of the Press as a factor in the mental health, or ill-health, of the community was the subject of discussion at one session. The indictment was opened by Dr. J. R. REES (medical director, Tavistock Clinic), who did not spare the popular press in his denunciations on the ground of sensationalism, distortion, and hurried and uninformed handling of social and medical matters. Mr. PAUL WINTERTON of the *News Chronicle* expressed his agreement with a good deal that Dr. Rees had said. Both speakers urged the need for greater discretion in the reporting of suicide cases, though Mr. Winterton pointed out some technical obstacles to a ban on all such reporting, and as to the suggestion that publicity led to imitative suicide he was entirely sceptical. If the reports of suicides drew attention to a drug which could be easily procured it was surely not for the Press to conceal the fact but for the legislature to make it more difficult to obtain the drug.

Dr. Rees and Mr. Winterton both called attention to the new craze for astrology in the Press. Mr. Winterton agreed that the newspapers often did disservice in fostering superstitions. Dr. Rees believed that the Press carried a heavier responsibility even than the medical profession, and that professional standards should be established stricter than anything yet known—a body comparable with the General Medical Council, with real power to control where control was needed. Mr. Winterton, dealing with the charge of sensationalism, doubted whether the artificially created excitement had any seriously injurious effect upon the mental health of the public. But he went on to suggest that the real difficulty of the Press in relation to mental health was that, needing assistance from the medical profession, it was met by an attitude of jealous secrecy, supported by a jargon intelligible only to medical men themselves, and by a barely concealed contempt for the journalist who tried to translate their technicalities into plain English. So out of date were the rules which governed the conduct of medical men that to spread truth and knowledge through the Press under their own names was a matter severely frowned upon, if not exactly "infamous conduct in a professional respect." He suggested the setting up of a Press service in connexion with every mental health organization in the country, not least the Board of Control.

The discussion was continued by Dr. N. G. HORNER (Editor, *British Medical Journal*), who reminded Mr. Winterton that the rule of anonymity in the medical profession was not as perverse as he supposed. It was directed against self-advertisement. The real experts—men of high standing and principle—would be more helpful and obliging to newspaper men if the latter would be a little more discriminating.

> "It must be vexing to be interrupted in a difficult consultation or pulled back from the bedroom at the end of an anxious day to find that the extremely urgent message is a bright inquiry about a piece of hot news from the Paris Agency—that a professor has cured malaria by giving the patient a drug called G.P.I."

He also touched indirectly on the habit of newspapers of making extracts from the columns of the medical journals.

> "The medical journals print a good deal of matter that could usefully be passed on to the public. The lay journals are our brethren, and we would like to co-operate. Is it asking too much that they, and the newspaper agencies, should pay a little more attention to serious articles of general interest in the *Lancet* and the *British Medical Journal*, and less to the man with three thumbs and the baby that weighed as much as its mother?"

Dr. MURDO MACKENZIE, Mr. S. H. HALFORD (Middlesex County Council), and others contributed to a candid and often amusing discussion. Another subject on the programme of the conference was "The Emotional Needs of the Child," to which a number of heads of schools contributed, and a group discussion was held on the place of the social worker in mental health.

NEUROSES IN WAR-TIME

COURSE OF LECTURES AT THE TAVISTOCK CLINIC

A course of six lectures is being given at the Tavistock Clinic on the general subject of neuroses in war-time, with special reference to the civilian population. They began on January 12 with a lecture by Dr. M. B. Wright on the general subject, followed by Dr. J. A. Hadfield on the aetiology of the psychoneuroses. The subjects announced for lectures on the two following Thursday afternoons were conversion hysteria, anxiety states, physical and psychotic syndromes, and the emergency treatment of neurotic states.

WAR AND THE CIVILIAN POPULATION

In the opening lecture Dr. M. B. WRIGHT, physician to the Clinic, began by asking whether there could be said to be an effect on the population as a whole. The population was made up of individuals, no two of whom reacted in exactly the same way to the same situation. The same was true of the family, each member reacting differently to war conditions according to age, sex, and relationship—the father disturbed by the economic situation, the mother anxious for her children, the boy eager to serve, the girl hoping to find in war some broader life than she had experienced under home conditions. All that could be really said about the reaction of the civilian population to war was that the overt behaviour of large numbers seemed to give evidence of alteration in feeling and mood.

Discussing certain lessons to be learned from the last war, Dr. Wright said that he did not think the sense of anxiety and apprehension was ever so widely spread over the country as in August, 1914, largely because no one in a civilian population knew what war would be like. It was because of the absence of the critical faculty that in the early days of the war rumour played so large a part. Mythical stories of Russian troops, of spies, of huge naval engagements, and of angels of Mons found ready currency among a suggestible population. As the realities of war began to emerge the anxiety took on a different character. The first cases he himself saw of really acute anxiety were those in which the threat was not to life but to economic security. At the outbreak of the war a moratorium was declared and no one knew what would happen to the economic structure. He saw a number of cases of complete breakdown among bankers and stockbrokers. Many people would evince more anxiety with regard to property than with regard to life. But after the first few weeks of war new attitudes began to emerge. A wave of enthusiasm swept the country, an ideal was raised, which was maintained during the whole of the four years, though badly tarnished at times, and this enabled the great mass of the population to endure hardships without any real loss of morale or any great sense of defeatism. A vast proportion of the population became tolerant of war conditions and were able because of the ideal to accept hardship without revolt. The same thing was true in France, where he undertook three long tours during the war and saw a good deal of the civilian population in large and small provincial towns. There was little sign of overt anxiety and there was an amazing cheerfulness and self-discipline, although in France the evidence of the tremendous casualty lists was much plainer than in this country.

Mental Defences against Anxiety

Although overt anxiety seemed to lessen as the realities of war became manifest, it was only suppressed, and in reaction to it the mental defences against anxiety became evident. These took the form, on the one hand, of the liberation of tendencies hitherto suppressed, and, on the other, of the acquirement of a stricter discipline and control. With regard to the liberation of tendencies generally restrained, he mentioned the astonishing release of sadism in normally gentle and cultured folk, manifest especially in the early days of the war, in the Press and in conversation. There was also plenty of evidence of a lowering of the accepted standard of sexual morality in both sexes. Free sexual indulgence was in the majority of cases not the result of increased opportunity but a very definite defence against anxiety. The same applied to drink and extravagance. All of them knew many chronic alcoholics the beginning of whose condition could be ascribed to war stress. With regard to the second group—those who acquired a stricter discipline and self-control in the face of war conditions—this was evident enough in the fighting forces, in the nursing and ambulance services, and in workers in voluntary organizations of all kinds. These people were drawn from every class of society and undertook a discipline quite alien to their peace-time occupations.

Speaking of the effect of air raids in the last war, Dr. Wright said that he was in London during most of them and was in charge of a hutment hospital at Kensington for shell-shocked soldiers. The patients, who were very serious cases, were all in single rooms, and the nurses went from room to room to keep them steady. There was never a sign of hysteria or panic among the nursing staff, although there were many such signs in the patients. If there was any collapse it was after the air raids were over. Among the civilian population in the crowded districts of the East End, where bombing was more severe, there was panic and hysteria, never very serious, but bad enough. He thought that aliens in any country did not stand war experiences so well as nationals. When they were alien there was much less motive for restraining the free expression of their instinct of self-preservation.

It was impossible to forecast the effect on a population of a future war. He was not at all sure that much had been learned from the reports of aerial bombardment in Barcelona and in China. They had been told that in Barcelona, although there were a good many psychiatric casualties to begin with, the population had become extremely tolerant of air raids. At the same time the admissions to the mental hospitals in Catalonia had been trebled since the outbreak of the war. He could conceive that there would be panic and hysteria, but both these were short-lived reactions. There was another reaction of a civilian population to war: not anxiety or panic, but the negation of both, perhaps the exhaustion of the faculty to feel, a stunned apathy, an inability to respond in the way of grief, fear, or joy. Probably apathy had a good deal to do with scarcity of food; it was noticeable in famine countries.

Maintaining the Spirit of the Population

What could be done to maintain the spirit of the population under stress of war? There must be clear evidence of preparedness and organization, and every man and woman should have a job to do and know when and where to do it. The Government should as far as possible and as early as possible let the facts be known. This would be the best defence against mass suggestibility. It was essential for the civilian population to have leaders worthy of trust. When there was common danger people tended to get together in groups, and the reaction of the group would depend very much upon any person therein who was accepted as an authority. He seriously wondered whether, if the horrors of war came to be experienced by the civil population, a return to some religious belief might not prove to be one of the best defences against anxiety for many people.

As war went on real anxiety became transformed into neurotic anxiety—anxiety which persisted after the objective cause had been removed temporarily or permanently. Perhaps it was the supreme test of stability of mind and body that a complete recovery took place after the cause of objective anxiety had been withdrawn. Nobody, however phlegmatic, was really immune from anxiety, and there was no system of the body—circulatory, digestive,

respiratory—which might not manifest the effects. Among mental reactions in the civilian population, especially when the destruction of life and property was so cruel and insensate, was a blind, unreasoned anger. Anger in normal life was often for the time being a release from anxiety; in war it could be a very terrible thing.

Would women stand war conditions as well as men? They would stand stress and danger just as well if not better, but they must be given an outlet for their maternal instincts. He pleaded against the separation of husbands and wives, and said that he would not like to have the handling of a camp of women whose menfolk fifty miles away were under daily bombardment.

GENERAL AETIOLOGY AND PSYCHOGENESIS OF THE PSYCHONEUROSES

In the second lecture of the series Dr. J. A. HADFIELD, Lecturer on Psychopathology and Mental Hygiene, London University, spoke on general aetiology and psychogenesis of the psychoneuroses. He said that a good deal of experience was available as to these conditions among soldiers, but in this country little was understood concerning the likely response of the civil population in air raids. Much of it must be surmise. It had been said that the neuroses of war were in no sense different from those of peace; nevertheless there were certain differences in the clinical manifestations. The majority of war conditions were traumatic, due to shocks of one kind or another, the determining cause being some external event, usually, of course, bombing or accident. Therefore certain types of neuroses were likely to manifest themselves more than others. During the last war, for example, there were few cases of obsessional neurosis. Indeed, a good many people who did suffer from such a neurosis were actually cured by war conditions. He recalled one man who had agoraphobia (fear of open spaces) while in London streets, but lost it entirely when serving with a naval patrol between Iceland and Shetland, a sphere of duty which might have been expected to accentuate his malady. Anxiety states proved to be more common amongst officers and N.C.O.s than amongst privates. There were some conditions of sexual impotence among the war neuroses, but on the whole, in his experience, few cases of sexual perversion. In some cases fear itself precipitated abnormal sexual feeling.

Beside the precipitating factor of the traumatic experience there were very often predisposing causes of an important kind, either physiological or psychological. Two men would undergo the same experience, and one would have a complete breakdown while the other was unscathed. The simple answer was that it was a question of "neurotic constitution" which made the first of the two incapable of facing the experiences of life. But this was not altogether a plain issue. There were some weedy individuals, of the "C 3" type, whom one would expect to break down more frequently than others, and yet many of these people did not break down, while those of the athletic type, on the other hand, broke down very badly. Advances in modern psychopathology had shown the effect of experiences in early childhood in predisposing people to nervous breakdowns of various kinds in later life. Both the "neurotic constitution" and the "neurotic disposition" which was formed as a result of a child's early experiences had to be taken into account.

Origins of Nervous Disturbance

When an individual was faced with a critical situation a certain amount of energy was liberated to enable him to cope with it. That was normally discharged in voluntary motility as a single impulse. If this energy was temporarily dammed within the individual and then forced its way out explosively it became what was called emotion. Emotion was due to the temporary thwarting of the energy, which then expressed itself with greater violence. But if the energy was thwarted altogether so that it could not be manifested in voluntary motility, the stimulus still liberated energy within the organism, but as there was no outlet it was dammed back and expressed itself in disorders of the viscera and the autonomic nervous system, on the one hand, and, on the other, in mental changes shown in anxiety and distress. Viewed in that way, there were at least three important clinical conditions arising in such a situation of crisis when the ordinary reaction was thwarted. The first was a disturbance of voluntary motility, shown by *conversion hysterias*, paralysis, aphonia, fits, and so forth. The second was illustrated by changes in the body due to derangement of the autonomic nervous system, such as disturbances of digestion, urination, and so forth, which we may term the *true neuroses*. The third was the *anxiety state*. These conditions would certainly be met with in any future war, because one of the differences between past and future wars was that the latter would be endured by people who were cooped up in houses, in situations of great danger, with no normal outlet for their voluntary motility.

Hysteria.—With regard to the first—namely, those conditions favouring a disturbance of voluntary motility—there would be many people who suffered from panic, which was to be distinguished from the ordinary expression of fear by being without aim or direction. There would also be many people suffering from hysterics, violent outbursts of uncontrolled emotion. Usually these occurred after a period of emotional suppression. He mentioned the famous case of Bismarck, "The Iron Chancellor," who, after waiting the whole day for the result of the Battle of Austerlitz, fell into a typical condition of hysteria, laughing and weeping, when word was brought to him of the victory of his forces. As for fits, it was important to distinguish between those of psychological and those of organic origin. The lecturer mentioned one interesting case of a man who had a fit only when he found himself between a ploughed field and a grass field. It was in such a situation that he had been blown up.

The True Neuroses are the secondary effects of a state of anxiety, of which the lecturer mentioned the many cases during the last war which were labelled "D.A.H." These men had disordered action of the heart, while others had disturbances of digestion and of excretory functions due to interference with the autonomic nervous system.

Anxiety States.—The importance of recognizing the condition of anxiety was this: that whereas all people were more or less affected by a given situation, there were some who were predisposed by earlier experiences, and if they were in an air raid shelter would therefore respond in an exaggerated manner. Such an ordinary conditioned reflex tended to pass away unless reinforced, and in many of these cases the anxiety stage had passed away until it was brought back again by the conditions of war, such as being shut up in an enclosed space or subjected to terrific noise. Another anxiety type originated when a child had some objective fear in infancy, or perhaps had an unkind mother or lived in a disturbed home. Such a child in later life might compensate by acquiring an attitude of self-sufficiency and independence, putting up a barrier of achievement, pushing down his fears, and setting out to be a success in the world. To all appearance he was a brave and efficient man, but when he got into one of these conditions of danger that long-repressed fear was stimulated, and surged up again in the form it assumed originally. That was why it so often happened that a man who was to all appearance cool and courageous was the first to break down. His ultra-efficiency or bravery was in a sense "put on." One of the reasons why commissioned officers and N.C.O.s suffered from anxiety states to a greater extent than the rank and file was because of the greater necessity for suppressing their fear. Men with this background had made themselves efficient, pushing down their weakness, and had obtained promotion, but suffered for it afterwards.

The last group of anxiety states consisted of obsessional fears and differed to some extent from the others. Obses-

sional fears are fears of our own forbidden impulses. For instance, persons who suffered from a sense of guilt deriving from their early days, whether on account of sex or of hate, were likely under war conditions to imagine that this was the punishment of God for their misdoing, and therefore a bad nervous condition was precipitated. The lecturer mentioned the case of a woman who was excessively anxious lest her husband be killed in the war. A deeper examination showed that in her subconscious self she wanted her husband to be killed because she was not in love with him and desired to marry another man. But her horror at this secret guilt led her to show excessive anxiety on his behalf.

If these conditions as to general causation were summarized, the essential point in the psychopathology would be found not only in the precipitating traumatic factor but in a predisposing factor—namely, a feeling of insecurity, arising from fears and anxieties in early childhood. It was this unknown factor in each case which gave the neurotic background to the reaction of people, and would have to be reckoned with in adequately dealing with these conditions in war-time, especially in the civilian population.

EQUIPMENT FOR SCIENCE

MICROSCOPES AND RADIUM STANDARDS

Fifty manufacturing firms and almost as many research departments combined to make the usual interesting display at the annual exhibition of the Physical Society at South Kensington during the first week of January. Each year sees new instruments with new uses and also new names—the "introscope" and the "thixoviscometer" were fresh to us—and the ingenuity of science knows no limits. One instrument was on view specially designed to test whether butterflies have a preference for laying eggs on cabbage leaves of one colour more than another. A.R.P. has given a fresh stimulus to designers. One switch had two buttons: when the "alarm" button was depressed the sound was emitted, five seconds on and three seconds off, for two minutes; when the "all-clear" was depressed, a continuous sound for the same total period. Then there was an A.R.P. educational set, with appliances and chemicals which permitted the performance of all the different phenomena of an air raid—the effects of explosives, incendiary bombs, gas, and fire. But one turned with refreshment to the microscope, which was here again in greater variety than ever. One model was described as a medical routine microscope to fill the gap between students' microscopes and the more costly research instruments. Laboratory microscopes are now so designed that, in the first instance, a comparatively simple instrument may be bought which can be in time built up into a comprehensive binocular equipment. Built-in light sources are very popular, and now there are microscopes with ball-bearing fine adjustments whereby greater sensitiveness in the adjustment is obtained.

The Radium Exhibit

The radium exhibit staged by the National Physical Laboratory was well worthy of note. It illustrated the methods and apparatus used at Teddington for the testing of needles, tubes, and plaques. A model of the British national radium standard was shown. This consists of a weighed quantity of extremely pure dehydrated radium chloride enclosed in a thin-walled glass tube. The standard was certified by the International Radium Standards Committee in 1934 to contain 15.6 mg. of radium element. Secondary radium standards similar to the national standard and ranging in content from 0.5 mg. to 105 mg. are used for routine measurements. It was mentioned that since the Laboratory started the routine testing of radium in 1913 about 170 grammes of the element, valued at well over one million pounds, have passed through its hands. During the last ten years it has been responsible for testing some 8,000 radium containers allocated to the various national radium centres, the total content being over 40 grammes of radium element. The world's total supply of extracted radium was given as nearly one kilogramme. A special exhibit was designed to illustrate the measurement in roentgens of doses of *x* rays and radium gamma rays. The work of the Laboratory in the inspection of hospital and industrial *x*-ray departments from the point of view of the safety and well-being of the operators was also demonstrated. The basic principle of protection from radiation was described as enfeebling it, whether by distance or by absorption in suitable materials, to such an extent that operators are not subjected to an amount of radiation exceeding one roentgen per week, which is regarded as the maximum safe tolerance dose for a person in normal health, working under satisfactory conditions as regards ventilation and number of hours engaged. Another exhibit of interest was shown by the physics department of the Imperial College of Science and Technology in the shape of a colorimetric equipment for research on vision; records of electrical and chemical effects in the retina were shown. The laboratories of the Safety in Mines Research Board also brought forward two improved instruments, one for recording rapidly changing stresses in mines and the other for facilitating a survey of mine lighting conditions.

THE CANCER CAMPAIGN

Viscount Hailsham presided at the sixty-ninth quarterly meeting of the Grand Council of the British Empire Cancer Campaign, held at 11, Grosvenor Crescent, London, on January 10. A report was received from the Central Propaganda Committee that the new "talkie" propaganda film which had been prepared by the Gaumont-British Film Company would soon be ready for release, and that the Duke of Gloucester, President of the Campaign, had viewed the film. Furthermore, His Royal Highness had himself been filmed while introducing and commending the film to the public. This film will be used throughout the country in connexion with educational propaganda. An application for affiliation to the Campaign from the Cancer Trust of the Perth (Australia) Hospital was acceded to.

Award of Grants

On the recommendation of the Executive Committee, grants totalling £22,526 were made towards the maintenance of cancer research during 1939, thus bringing the total amount approved to date for the year up to £38,000. Those receiving such grants include: Middlesex Hospital, the Royal Cancer Hospital, St. Bartholomew's Hospital, London Hospital, Mount Vernon Hospital, St. Mark's Hospital, Marie Curie Hospital, Oxford University Research Centre of the Campaign, Reading University, Bristol University Cancer Research Committee, Westminster Hospital, and the Strangeways Research Laboratory; also Dr. A. Pollard, working at the Middlesex Hospital; Mr. J. Carr and Dr. P. A. Gorer, working at the Lister Institute of Preventive Medicine; Dr. Alexander Haddow, working at the Royal Cancer Hospital; Mr. F. C. Pybus, through the North of England Branch of the Campaign; Dr. Paul Browning, working at Glasgow University; and Mr. Nevill Willmer, at Cambridge University. A further grant of £1,350 was made to meet additional expenses to be incurred by the Clinical Cancer Research Committee in connexion with its scheme of clinical cancer research.

A report was received upon the correspondence which had taken place between the Campaign and the Ministry of Health regarding the Cancer Bill, and the members expressed their satisfaction with the co-operation that had been established. Grand Council confirmed the undertaking that had been given to the Ministry of Health that the Campaign will pursue the work to which it has directed so much energy in the past fifteen years to the limit of its future resources, believing that in this way it will be making a real contribution to the final solution of the twin problems of the prevention and cure of cancer.

Reports of Societies

CLINICAL ASPECTS OF VITAMIN B COMPLEX

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on January 10, with Dr. J. W. TREVAN in the chair, a discussion took place on the clinical aspects of the vitamin B complex.

Professor R. A. PETERS said that there had been described five or six factors in the vitamin B complex, but vitamin B_1 was the most important, along with nicotinic acid, now known as the pellagra-preventing vitamin. Vitamin B_1 was an essential component of many varieties of living cells and was probably universally needed. It was responsible for the metabolism of pyruvic acid, an essential stage in the degradation of carbohydrates. The position of pyruvic acid as an intermediary could be proved by the fact that in human beriberi and in animals deficient in vitamin B it accumulated in the blood, together with lactic acid, and disappeared upon the vitamin being given. Some tissues from vitamin-deficient animals even showed effects *in vitro* after the addition of vitamin B_1 in appropriate media. Conditions which increased carbohydrate utilization increased the need for vitamin B_1; fat was stated to spare the vitamin. The symptoms produced in deficiency were due to lowered vitamin content in actively metabolizing organs. In the higher animals the tissues most affected were the brain and nervous system, the heart, and the kidney, presumably because their needs were greater and not because the other tissues did not use the vitamin in metabolism. Secondary changes in carbohydrate metabolism might arise as the result of dysfunction in the cells in parts of the nervous system concerned with the regulation of the blood-sugar level. By careful consideration of the tissues in which vitamin deficiency was most quickly found, and of the function in metabolism now known, clear indications were given for the diagnosis and treatment of minor deficiency as well as of the major manifestations of beriberi.

Factors Producing Deficiency

Dr. H. M. SINCLAIR dealt with the factors which tended to produce deficiency of vitamin B_1—inadequate ingestion of the vitamin and failure to assimilate it. As the requirement of the vitamin was proportional to the metabolism of the body and as it was concerned with the utilization of carbohydrates, deficiency would arise when the diet had a high energy value, particularly in carbohydrates, but was low in vitamin B_1, or when the requirement was increased by muscular work, pregnancy, fever, or hyperthyroidism. For this reason symptoms of deficiency were rare in cases of anorexia nervosa. The association of beriberi with fever was so common as to have led some clinicians to state that the disease was an infection and not due to a dietary deficiency; vitamin B_1 was stated to be effective in post-influenzal neuritis and the neuritis of leprosy. Most cases of "alcoholic" polyneuritis were without doubt primarily due to a deficient intake of the vitamin, and probably the same was true of the polyneuritis of pregnancy. Symptoms of deficiency were rare in cases of hyperthyroidism because such patients usually consumed a liberal diet. Failure to assimilate the vitamin might be due to lack of absorption, destruction in the gut, or inability to "phosphorylate" it, and a fourth possibility was increased excretion in the urine. Polyneuritis, which was probably caused by failure of absorption, had been observed in various disorders of the gastro-intestinal canal. A number of cases of polyneuritis secondary to pyloric stenosis had been described, and it was possible that in such cases prolonged fermentation in an alkaline medium in the dilated stomach caused destruction of the vitamin. These and other considerations were illustrated by Dr. Sinclair from the results of estimations of the apparent vitamin B_1 in blood from over 300 cases.

Neurological Syndromes

Dr. E. A. CARMICHAEL said that in America they appeared to have a form of "alcoholic" polyneuritis which was not seen in this country. He had gone through the records of the National Hospital, Queen Square, over a period of six years, and the cases of the kind which were labelled "alcoholic" numbered only three or four a year, and one or two of these had been cases admitted after treatment had been given elsewhere and were not acute. More recently, through the kindness of the London County Council, he had made some further inquiries as to the possibility of cases of polyneuritis due to alcoholism, but he had had only one reply. It looked as if in this country alcoholic polyneuritis was a rarity. Work in America had shown clearly that this condition was a vitamin deficiency. As to the possibility of any other neurological syndromes resulting from vitamin B deficiency, the difficulty lay in assessing the value of therapy. Again, unless the dietary intake was controlled in the cases admitted there was likely to be great difficulty in assessing the value of any therapeutic method. At one time he thought he and his co-workers had elaborated an adequate means of determining the effect of a vitamin, and two cases so tried improved after high doses of vitamin A instead of vitamin B, but it was proved afterwards that vitamin B had previously been given, so that the result might have been a delayed effect of that vitamin.

Effect on the Cardiovascular System

Dr. PAUL WOOD said that while vitamin B_1 deficiency might be a rare cause of cardiovascular disturbance, it was an important one because it was amenable to treatment. It should be looked for in cases of chronic alcoholism, and suspected in patients on a long-continued restricted diet and in cases of right ventricular failure of unknown aetiology. The two outstanding features were peripheral vasodilatation and right ventricular failure. The former was evident from the warm skin, capillary pulsation, low diastolic blood pressure, and the "pistol shot" sounds heard over the bounding major arteries. The right ventricular failure was shown by the lack of orthopnoea, the dry lungs, and the relatively short pulmonary circulation time associated with a high venous blood pressure, enlargement and tenderness of the liver, and dropsy. Though the onset was commonly insidious, there was an acute fulminating form in which the patient might die within a day or two of the apparent beginning of the symptoms. In such cases there was circulatory collapse, and the engorged pulsating cervical veins were in striking contrast to the feeble radial pulse and small peripheral veins. The diagnosis rested on the dietetic history, the characteristic clinical features, the associated polyneuritis, the demonstration of reduced amounts of vitamin B_1 in the blood or urine, and the dramatic effect of treatment with sufficient quantities of the vitamin. Treatment consisted of intravenous or intramuscular injection of from 10 to 50 mg. of crystalline vitamin B_1 (aneurin) daily in severe cases, and, in the milder forms, of 5 to 10 mg. given intravenously, subcutaneously, or orally.

General Discussion

Dr. C. C. UNGLEY described in detail a case he had seen recently of beriberi complicating pyloric stenosis and illustrating many of the clinical manifestations of vitamin B_1 deficiency. In endeavouring to decide the part played by such deficiency in any case of polyneuritis it should first be asked whether there was any apparent cause for the deficiency, and whether the clinical picture, including the state of the cerebrospinal fluid, was compatible with a nutritional type of polyneuritis. Cases which showed gross motor changes with-

out sensory changes and those which showed a raised cerebrospinal fluid pressure were almost certainly not nutritional in origin. It should also be asked whether there were signs of nutritional deficiency apart from polyneuritis, such as enlargement of the heart and nutritional anaemia, what was the result of any measurement of vitamin B_1 in blood or urine, and what was the result of a controlled therapeutic test. Dr. LUCY WILLS said that she had investigated the achlorhydria seen in a large number of cases of hyperthyroidism, and had attempted to obtain a pre-operative return of acid by treatment with vitamin B_1, but she thought her negative results were of small value because she never gave more than 500 international units a day, which must be considered, in the light of recent work, very inadequate. On such a dose, for periods up to ten days, she could see no return whatever, but she felt tempted to repeat the experiments, using larger doses. Dr. GEOFFREY KONSTAM showed radiographs of two cases in which the size of the heart was measured by *x* rays before and after treatment with vitamin B_1. In the case of one man daily injections of vitamin B caused a significant diminution in the transverse diameter of the heart. The other case was somewhat similar.

Mr. A. L. BACHARACH remarked that beer was said to be devoid of vitamin B_1, but the evidence was open to question. It seemed that a substance made from malt extract might contain appreciable quantities of the vitamin, and so produce at one and the same time a tendency towards alcoholic polyneuritis and a prophylactic effect. Possibly the difference between the incidence of alcoholic polyneuritis in this country and in the United States might be explained by the fact that the British were largely beer-drinkers and the Americans largely spirit-drinkers. The requirements of the normal individual for optimum nutrition were believed to be in the neighbourhood of 2 mg. a day. Doses of 1 mg. had been mentioned, but it seemed very unlikely that in a subject presumably suffering from deficiency, and from deficiency over a long period, a dose which represented only half the optimum requirement for the normal individual would have any marked therapeutic effect. Dr. R. GOODHART said that in the United States right-sided enlargement of the heart was not generally regarded as being necessary for the diagnosis of beriberi heart disease. The changes found in beriberi heart disease were not uniform and vitamin B_1 deficiency might present various clinical pictures. Alcoholic pellagra and endemic pellagra had been regarded as two different conditions, but they were now no longer considered different; both responded in the same way to nicotinic acid. At the same time, he thought it would be rational to limit the description "pellagra" to those symptoms which responded to nicotinic acid therapy. Dr. PAUL WOOD mentioned that it was necessary to drink twenty pints of beer (American) daily to obtain an adequate amount of B_1.

SURGICAL TREATMENT OF AIR RAID CASUALTIES

At a meeting of the Paddington Medical Society on January 10, with Dr. SAUL CROWN in the chair, Colonel J. M. WEDDELL, Professor of Military Surgery, R.A.M. College, gave an address on the surgical treatment of air raid casualties.

Colonel Weddell said that the casualties likely to occur in air raids would be the result of high-explosive bombs, incendiary bombs, gas, and possibly—from low-flying planes—machine-gun bullets. Of these the most important were high-explosive bombs. In Spain, he understood, the effects of incendiary bombs were relatively slight, but in China, owing to the greater fragility of the buildings, they were far more damaging. The wounds and mutilations were caused not only by direct hits but by shell splinters and fragments, burns, falling masonry, and blast from high explosive. All missiles were probably infective, rifle and machine-gun bullets relatively less so. Wounds from shell fragments and bomb fragments were most dangerous because they were usually multiple, and also because they tended to carry into the wound fragments of clothing and gross dirt.

In the treatment of gunshot wounds the infection of the wound track was the most important thing to be considered. Organisms were implanted in the wound track, but did not spread in the surrounding tissues for about twelve hours. If early and efficient surgery could be carried out within that time there was good chance of saving the case and closing the wound by primary suture. These primary suture cases, however, needed quiet and peaceful attention, which in the rush of an emergency call might not be possible. In cases arriving later or those in which satisfactory excision could not be carried out the method of delayed primary suture was very useful. This consisted of excision of the wound edges and track as complete as possible, with efficient haemostasis, the wound being left open, packed with gauze impregnated with some mild antiseptic. If progress was favourable it was possible to close the wound by secondary suture within three or four days. These cases would stand evacuation quite well, and could usually be removed from the casualty clearing station as soon as they had recovered from the operation. But to give cases the best chance of success the operation should be carried out within twelve hours of the infliction of the wound. In certain instances rapid evacuation was contraindicated. These were cases in which shock was present or likely to develop, and would be aggravated during transport.

As to the best position for an operating centre in the case of air raid casualties it was difficult to visualize a large service hospital in a vulnerable area, open to the possibility of repeated and intensive bombing, being able to carry on. Moreover, apart from the constant danger to life of patients and attendants, the essential services were subject to grave risk of stoppage. The alternatives appeared to be underground bomb-proof hospitals for evacuation of wounded, and hospitals outside the vulnerable area for operation and retention. Evacuation by air might some day be a possibility, when the helicopter type of machine was fully developed, but at present there were certain difficulties. There remained the road and the railway, but a highly satisfactory method, if available, was the waterway, and in France during the war the canals were largely used for ambulance barges. (In the subsequent discussion a Paddington practitioner mentioned that the canal which passes through that part of London would have to be drained during war, owing to the danger of flooding.)

Coming to the actual treatment of wounds, Colonel Weddell said that it was essential that splinting should be applied to every fracture and extension in suitable cases at the earliest possible moment. Adequate immobilization of fractures and joints added to the comfort of patients during transport, and so might prevent shock. Spinal cases should be transported in the prone position on a stretcher, except injuries to the cervical vertebrae, in which case the patient should be on his back with a stiff pillow under the neck. A good many flexion fractures might be expected from falling masonry and falling-in trenches. The tourniquet was not called for nearly as frequently as was often imagined. When used it should be remembered that the pressure necessary was only equal to that of blood pressure. If a tourniquet was applied to a patient and he was sent away it was most important to affix a label on him that he had a tourniquet and showing the time at which it was applied. The general treatment of haemorrhage was rest, warmth, and the use of sedatives. Hot sweet tea was the best fluid to give the patient. As for the blood transfusion service, citrated blood could now be stored in refrigerators and kept in use for about ten days. In Spain much use was made of blood stored in refrigerators, which was transported on lorries, the refrigerating process being worked off the lorry engine. On the subject of anaesthesia the new barbiturates, such as evipan sodium, would appear to

be rather tempting for use at dressing stations, but he thought that for shocked patients these were contraindicated. For emergency procedures the best anaesthetic for standard use was ether. Gas and oxygen was best for all serious operation cases, but the supply of cylinders might be a difficulty if it was required in every case.

In the course of discussion Colonel E. M. COWELL described some experiences in Barcelona, and highly praised the surgical service in Republican Spain. He exhibited some Spanish literature which he had collected, including an illustrated pamphlet by Dr. José Raspall on the treatment of fractures in war. Gangrene would be a very great danger in the air raid cases in Barcelona were the surgery less careful and efficient. Dressing stations in Barcelona had been abandoned, and about fifty motor ambulances were used to convey the wounded immediately to the hospitals. The two great hospitals, one of them with 1,800 beds and 22 theatres, and the other with 2,000 beds and 27 theatres, were outside the danger zone. An excellent blood transfusion service had been developed; only the universal type of blood was used. With regard to anaesthetics, gas and oxygen could not be procured, and ether was used. Dr. EVANS, who had also recently visited Barcelona, spoke more particularly from the aspect of nutrition. He mentioned with admiration the ambulance trains, which were in fact converted *wagon-lits*. The motor lorry ambulance had been abandoned, presumably owing to the damaged roads.

Mr. MCADAM ECCLES raised the question of the function of the large London hospitals in time of war. They were all agreed that if they could evacuate the serious casualties from an area which might be re-bombed so much the better. A great deal could be learned from military experience, but air raids on city populations raised new and not easily imagined possibilities. The thirty-one air raids on London during the last war were no criterion of what might be expected in some future war. At that time the hospitals carried on, operations actually taking place during air raids, in one of which 1,200 panes of glass at St. Bartholomew's were smashed. He suggested that it would be a very good thing to have a standard organization of anaesthetists available to be mobilized immediately on emergency.

In the ensuing discussion, which was of a private nature, Dr. D. H. GEFFEN, M.O.H., Guildford, Dr. D. E. OATES, M.O.H., Paddington, and two members of the A.R.P. staff of the Ministry of Health discussed A.R.P. generally, and Dr. H. A. NATHAN and Dr. G. DE SWIET spoke more particularly of local provision in Kensington and Paddington.

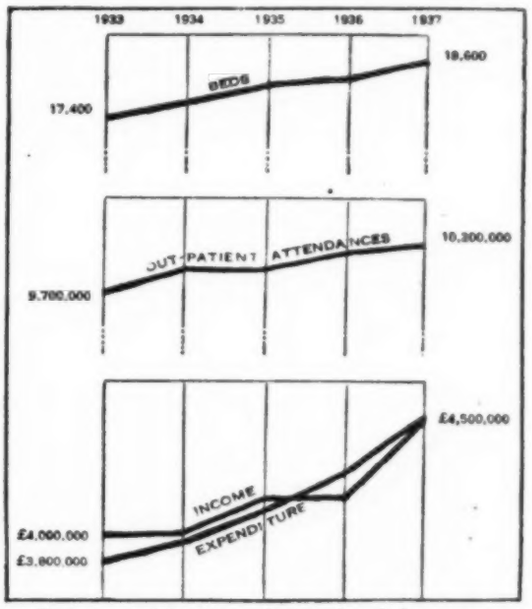
At the meeting of the Physical Society on January 13 at the Imperial College, South Kensington, Sir Ambrose Fleming, D.Sc., F.R.S., gave an address on "Physics and Physicists of the Eighteen-seventies." Sir Ambrose Fleming and Sir Oliver Lodge are the only two surviving original members of the Physical Society of London, which was founded by Professor Frederick Guthrie in 1874. On March 21 of that year Mr. J. A. Fleming, a young man in his early twenties, read the very first paper at the inaugural meeting of the society at Guthrie's invitation. That the same individual should address the same society after an interval of nearly sixty-five years must be unique in the history of scientific societies. The decade forming the subject of the address was marked by a very rapid growth of the practical applications of physical knowledge, one example among many being the pioneer work of Sir William Thomson (afterwards Lord Kelvin) on sensitive electrical instruments in connexion with the first two transatlantic cables for telegraphic communication between this country and the U.S.A. The work for which Sir Ambrose Fleming himself is best known—namely, his pioneer work on the thermionic valve used in wireless telegraphy—belongs, of course, to a later period.

Local News

ENGLAND AND WALES

London Voluntary Hospitals: A Five-year Survey

A pamphlet issued by the Council of King Edward's Hospital Fund for London (10, Old Jewry, E.C.2) gives a survey of five years' progress in the voluntary hospitals within a radius of eleven miles of St. Paul's Cathedral. The period reviewed is 1933–7, and the institutions are those to which grants are made from the King's Fund. The number of in-patients treated during the five years rose from 262,000 to 287,000, and the number of beds



Five years of London voluntary hospital progress.

from 17,400 to 18,600. The total maintenance expenditure of the hospitals helped by the Fund rose from £3,790,000 to £4,554,000, while in the same period the income of these hospitals rose from £4,023,000 to £4,562,000. The chart reproduced in this column shows the upward trend in total number of beds, out-patient attendances, income, and expenditure. The largest item in the income of the hospitals is voluntary gifts, comprising subscriptions and donations £1,080,470, central funds £314,604, and legacies £575,836. Contributions received from patients in return for their treatment amounted to £1,538,333. Much of this total came through contributory organizations, such as the Hospital Saving Association. The total payments received from public authorities for work done under special schemes for medical treatment of school children, tuberculosis patients, etc., amounted to £299,180. A survey of the accommodation provided by the London voluntary hospitals, carried out by the London Voluntary Hospitals Committee in 1931, showed that 37 per cent. of the patients in hospitals within the County of London came from outside the county area.

Royal Sheffield Infirmary and Hospital

As already announced in these columns the Act of Parliament amalgamating the Royal Infirmary, Sheffield, and the Sheffield Royal Hospital came into operation on January 1, 1939. The new governing body—Court of Management—at its first meeting elected Sir Ronald W. Matthews chairman, Mr. Fred M. Osborn deputy chairman, and Mr. W. H. Booth secretary. The Royal

Infirmary, founded in 1797, has 476 available beds, and the Royal Hospital, founded in 1832, 392 and thirty "paying" beds—a total of 898. Two Boards were appointed—one to manage each institution—and a finance committee. The amalgamated hospitals will be known as the Royal Sheffield Infirmary and Hospital. An appeal for £1,000,000 was launched in July last by H.R.H. the Duchess of Gloucester on behalf of the four Sheffield voluntary hospitals—namely, the two now constituting the amalgamated body described above, together with the Jessop Hospital for Women and the Children's Hospital. The fund will be used to finance important extensions at the Jessop and Children's Hospitals and also to purchase a site near the University and build thereon a new general hospital of some 800 beds. Hopes are entertained, after the approval of the general plans, of an early start on the new site with the erection of a cancer and radium centre and a dental hospital. The whole group, together with the Medical School of the University, will form the Hospital Centre which will serve not only the City of Sheffield but the large area surrounding it.

National Eye Service Exhibition

The National Eye Service has dealt with more than 700,000 cases since its establishment in 1929. In addition it has endeavoured to educate the public on the importance of examination by fully qualified medical men in any case of disorder of vision or disease of the eye. At noon on January 20 Sir Francis Fremantle opened at Charing Cross underground station an exhibition especially designed to give the public some idea of the benefits to be derived from such examination and to indicate how it may be obtained by anyone eligible for treatment under the National Eye Service scheme. One of the main features of the display, which will continue for the next two or three weeks, will be a showing of films that have been made by the National Ophthalmic Treatment Board. Two optical craftsmen, with well-equipped workbenches, are actually engaged at the exhibition in the making of spectacle frames and in glazing them. There is, too, a model consulting room with explanatory notices outlining the use of various instruments. Photomurals form an effective background, and there are in attendance assistants who will give any information to doctors or other visitors. The exhibition, which remains open until about 7.30 p.m. each evening, is well worth a visit.

SCOTLAND

Edinburgh Royal Infirmary

At the annual meeting on January 4 of the Court of Contributors of the Royal Infirmary of Edinburgh Mr. John R. Little, chairman of the Board of Managers, who presided, said that 22,000 patients were treated in the wards during the year, constituting a record, and in all the special departments there had been a very considerable increase in the work done. For example, in the radiological department the number of treatments was 15,718, as compared with 907 five years ago. The financial position was a serious one, especially in view of the opening at an early date of the large new maternity hospital and the new nurses' home to accommodate 300 nurses. For the maternity department, especially, additional sources of revenue must be found; in the speaker's opinion maternity care should be materially assisted from State funds. The managers, he continued, had repeatedly considered a contributory scheme on the lines of those that had been so successful in many large English towns, but there was some doubt whether the Infirmary would be better off financially; it already received a substantial income from the League of Subscribers and from contributions from other workpeople, more particularly in the mining areas, from which last year £12,000 was received. It was important that there should be co-ordination between the voluntary and the municipal hospitals, and with this end in view the Infirmary managers were in a short time to meet in conference with representatives of the corporation. With regard to the question of nursing, a general shortening of nurses' hours in an institution so large as the Royal Infirmary made a serious addition to costs, and it should be a matter for consideration whether the cost of training nurses, which conferred material benefits upon the community, should continue to be borne by voluntary hospitals without a contribution by some form of State grant. He considered that the limit of expenditure had now been reached. The voluntary system had for generations been an example to the world, and Government commissions and other representative bodies had all reported in favour of its continuance. It was to be hoped, therefore, that a united effort of all concerned would enable the present difficulties to be overcome.

The annual report of the Infirmary shows that during the last five years the ordinary income has increased by £23,000, but the expenditure during the same period has increased by £37,659. The average annual cost per occupied bed was £188, and the average cost per patient treated to a conclusion was £8 11s. 3d., while the average cost per day was 10s. 3d. Of the 21,883 patients admitted to the wards, 12,044 came from outside Edinburgh and 9,839 from the city. Not only were patients received from practically every county in Scotland, but they were also admitted from twenty counties in England and Wales and in considerable numbers from over-seas. The average number of patients on the waiting list throughout the year was 3,235; the number of beds has been materially increased during the past few years, but a growing number of people present themselves for admission. It is suggested that the solution of this difficulty lies in co-operation with the municipal authorities. The total ordinary income for the year was £140,882, and the total ordinary expenditure £187,859. An appeal was launched in 1937 for £200,000 to meet the cost of the extension scheme, but at the end of 1938 only £107,000 had been received.

Glasgow Samaritan Hospital

The Medical Report for 1937 of the Royal Samaritan Hospital for Women, Glasgow, deals with 3,191 in-patients discharged during the year. The number of operations performed was 2,790. A brief summary is given of each of twenty-three fatal cases. These include four deaths due to pulmonary embolism, following plastic operation for uterine prolapse (two cases), radium therapy in carcinoma of cervix, and anterior colporrhaphy and colpo-perineorrhaphy for cystocele and deficient perineum. All four patients were aged between 60 and 70. The date of occurrence of the pulmonary embolism varied from the sixth to the fourteenth day after operation. In the radiological department an increased volume of work is recorded: 128 patients were treated with deep *x*-ray therapy, as against ninety-eight during the previous year, while *x*-ray diagnostic cases increased from 157 to 205. The statistics of the pathological department include 1,377 histological and 447 bacteriological examinations of specimens, and forty tests for pregnancy. Sixteen specimens were mounted for the museum, and the catalogue was brought up to date in the course of the year under review.

Rehabilitation Clinic at Glasgow

At the annual meeting on January 2 of Glasgow Royal Infirmary Sir James Macfarlane, chairman of the Governors, intimated that the contributions from workpeople during the year had reached the sum of £34,591, which exceeded any annual sum previously obtained from this source by £3,652. Patients admitted to the Infirmary numbered 17,185. It had been decided to erect a new Rehabilitation Clinic in the buildings taken over from the Blind Asylum adjoining the Infirmary, towards the cost of which Messrs. Colville had contributed £10,000.

That clinic would be utilized mainly for cases of fracture and other injuries, and would contain a large suite of rooms with theatre, gymnasium, *x*-ray room, plaster room, etc. Sir James believed that the time had come when the Government must lend a hand to the voluntary hospitals. A first-class nursing service was vital to the State, and this was chiefly provided by voluntary hospitals. Hospital expenses continued to mount, and the State should now step in to share expenditure which had previously been met by voluntary contributions.

Correspondence

Air Raid Precautions

SIR,—The circular letter which appeared in the lay press on January 13 signed by a number of the leading physicians and surgeons in the teaching hospitals of London and the provinces deserves the earnest attention of all members of our profession, for it draws attention to a point which is apt to be forgotten in the battle between the advocates of the surface and the underground schools of A.R.P. defence.

The point is that it is quite useless providing skilled personnel and adequate accommodation for severe casualties if these are to be handled in unprotected operating theatres and nursed in unprotected wards. The hospitals ought to be provided with deep bomb-proof operating theatres and a certain number of wards if they are to be any use at all. Everyone knows that doctors and nurses will carry on in unprotected quarters if ordered to do so; but is it either wise from the patients' standpoint or fair from that of the personnel to ask them? Anyone who has seen the after-results of a bomb dropped in the middle of an operating theatre, as I have, will never want to see the same thing happen again.

No one wants to embarrass the Government in its efforts to improve passive defence, but each of us must know people of influence, either in Parliament or in the administrative services, and if this point were put plainly before them much valuable time might be gained. Our hospitals ought to be adequately protected, and it is our duty as doctors to draw repeated attention to the fact.—I am, etc.,

J. JOHNSTON ABRAHAM,
C.B.E., D.S.O., F.R.C.S.

London, W.1, Jan. 13.

Manipulation of the Spine

SIR,—I have read with great interest Mr. George Perkins's article on manipulative surgery in your issue of December 10, 1938 (p. 1214), and Dr. W. Hargrave Wilson's comment thereupon in your issue of December 31, 1938 (p. 1394). Like the latter author I cannot agree with Mr. Perkins that minor displacements of bone do not exist and that only major ones are possible. If a bone is capable of being moved pathologically into a position of major displacement or dislocation, it must during the commencement of such movement occupy a position which constitutes a minor displacement, and will persist as such were its onward progress towards becoming a major displacement suddenly arrested at this point. I have practised spinal manipulation for over twenty-five years, during which time I have diagnosed and replaced many thousands of minor displacements of the vertebrae, ilia, and ribs, and have obtained results when other methods had previously signally failed.

I would also like to endorse Dr. Hargrave Wilson's opinion that the profession should recognize the existence of the spinal lesion (which is so frequently associated with minor displacements) and should acquire the technique of spinal manipulation. With reference to the latter, however, I would like once again to express my disapproval of a method which is fairly common at the present day—namely, of manipulating the spinal column in every direction during general anaesthesia in the hope that something will move somewhere. I have frequently seen this method, which is haphazard and unscientific, lead to disastrous results.—I am, etc.,

EDGAR CYRIAX, M.D.

London, W.1, Jan. 10.

Compulsory Immunization against Diphtheria?

SIR,—In case of national emergency many districts will have to take into their areas very large numbers of persons the majority of whom will be children, a proceeding which will be accompanied by the danger of the spread of epidemic diseases. I suggest, therefore, since diphtheria is one of the most deadly of them while at the same time it is the most preventable, that either no children should be allowed to be evacuated from danger zones until they have had an adequate dose of diphtheria prophylactic, or, better still, that diphtheria immunization should be compulsory for all children between 9 months and the school-leaving age.—I am, etc.,

E. H. M. MILLIGAN,
Medical Officer of Health.

Glossop, Jan. 16.

Mechanical Respirators

SIR,—The suggestion by Sir Frederick Menzies of a "flying squad" to meet the threats of outbreaks of poliomyelitis (*Journal*, January 14, p. 85) becomes of increasing importance with the coming of the mechanical respirator, for one can foresee various unfortunate results for a time from inexperience or too late application. This country has escaped the disease remarkably, but the recent publication of maps in the *Journal* (December 31, 1938, p. 1400) shows existing risks. What an outbreak might become can be seen by examination of serial spot maps of the recent outbreak in Melbourne, although these do not indicate the crippling results of later years. An almost unnoticed outbreak at Plymouth in 1911 was only made evident when ten years later the *Report of the Central Cripples Committee* (1922) gave lists at various ages of crippled children, analysis of which placed eighty-eight children as probably crippled by the 1911 outbreak. Since then voluntary efforts have been made, and local authorities have provided orthopaedic clinics and cripple schools; but too often they still await the onset of the maximum damage before attempting to repair it. Fourteen years ago the story was summed up:

> "Neglect of infant palsy in this country is grievous. The greater part of the paralysis could be prevented by early care, which at present is beyond attainment by few except the richest members of the community. It is worth spending very considerable sums on a rapid and effective provision for any outbreak by dispatching units from the central authority to any part of the country to undertake care of even a few cases, till the danger is past. Such a unit would include doctors, nurses, and other workers with the outfit." (*Fundamentals of School Health*, p. 182.)

This provision is almost beyond the duty of local authorities; it is a national or regional requirement. Lord Nuffield has set a noble example by doing what is within his reach. Our ideas should have been so advanced that it will be possible for the Ministry of Health to take powers to organize observation and care at the earliest appearance of this crippling disease, and the complete utilization of the machinery for rescuing the most serious cases, otherwise doomed to early death.—I am, etc.,

JAMES KERR.

Edinburgh, Jan. 14

SIR,—In his letter upon the above subject which appeared in your issue of January 14 (p. 83) Professor R. R. Macintosh wants to know why I took six weeks to think out what he calls "my impassioned and urgent plea," and, earlier in the same letter, he says he thinks it is singularly unfortunate that my "strong criticism of Lord Nuffield's gift" has been delayed until his departure to New Zealand.

The answer to these questions is easy. In the first place, I was away in the Sudan during the whole of November and a part of December, and I knew nothing at all about Lord Nuffield's gift until after my return. For more than a fortnight after my return I was heavily engaged at the County Hall in an endeavour to cope with a mass of important matters which had accumulated during my enforced absence, and it was not until the Christmas vacation began that I had the opportunity of looking through a large collection of medical literature and became familiar with Lord Nuffield's gift and many other matters of interest and importance. I was astonished to find that no one had apparently written a word to the medical press criticizing in any way the wisdom of Lord Nuffield's gift, and, therefore, I took up my pen and wrote my first letter, which appeared in your issue of January 7, but would have appeared a week earlier if you, Mr. Editor, had been able to find room to publish it. With regard to the departure of Lord Nuffield for New Zealand, I have only to remark that Lord Nuffield is not in the habit of keeping me informed of his movements, and I knew nothing of his departure until I saw some reference to it in the daily press, and by that time my letter had been written and sent to the *British Medical Journal*.

Professor Macintosh seems to take great pains in his letter to make it quite clear that Lord Nuffield would not have been influenced by any advice from myself or anyone else. That being so it does not appear that the question of delay in writing to the *British Medical Journal* until his lordship was about to take his departure abroad mattered one way or the other. Professor Macintosh cannot have it both ways, so it would seem that there is no point in his protest in this connexion.

I never could understand until I read Professor Macintosh's letter how it came about that Lord Nuffield decided to make such a wholesale distribution of mechanical respirators; but, of course, it seems to be clear now that he had got the idea into his head that mechanical respirators were things used by anaesthetists—not an unnatural mistake for a layman to make. It is most unfortunate, nevertheless, that he was not informed of the appointment of a "Committee of Experts" by the Medical Research Council, at the request of the Ministry of Health, to investigate and advise upon the whole subject of mechanical respirators, more especially now that we know that the committee was appointed so early in November last, and that the chairman is Professor Witts of the Radcliffe Infirmary, Oxford. It is, however, some consolation to know that Professor Witts and his eminent colleagues regard the subject-matter under investigation as "urgent," that we may expect their report in the spring, and that, in the meantime, there is a reasonable probability that the provision of "respirators" will be reduced from 5,000 to 500. It is to be hoped that the committee will devote particular attention to the vital importance of a well-trained medical, nursing, and engineering personnel in connexion with the use of mechanical respirators, more especially in view of the primitive ideas upon this subject outlined in the scheme instituted at Oxford by Professor Macintosh, which reads rather like the sort of thing which would be given at a "first-aid" course by the St. John Ambulance Association. Professor Macintosh should also bear in mind that "standardization and mass production," however desirable in the motor-car industry, are not conducive to progress in the advancement of medical science.

A few days ago I noticed in one of the daily papers a comment attributed to Dr. Philip Drinker of Harvard University as follows: "It is a piece of sentimental foolishness and waste of money." Finally, Mr. Editor, I feel sure you will be relieved to know that, so far at least as I am concerned, "this correspondence must now cease."—I am, etc.,

London, S.W.3, Jan. 14. FREDERICK MENZIES.

SIR,—It would, I think, be deplorable if the situation created by Lord Nuffield's offer to supply artificial respirators to hospitals should be the occasion of controversy, but as one who has treated with considerable success some fifty patients during the last three or four years with a particular type of respirator (the Bragg-Paul pulsator) I should like to endorse the plea voiced by Sir Frederick Menzies and Professor L. J. Witts for the adoption of a more experimental and scientific attitude in the distribution of the Both respirators. With the help of the Medical Research Council and of the L.C.C. it is now possible to arrange that Lord Nuffield's generosity should be the means not only of providing an artificial respirator for every hospital likely to need one but also of furnishing the answer to the question referred to the Medical Research Council last November—namely, the assessment of the relative merits of positive and negative pressure methods of mechanical artificial respiration. To do this all that is necessary is that a certain number of respirators (other than the Both and certainly including the Bragg-Paul) should be distributed, and that full details of all cases treated with each type should be forwarded for analysis by Professor Witts's committee. In this way Lord Nuffield's immediate objective will be achieved and at the same time medical research will be further indebted to Lord Nuffield.

One other point is of considerable importance. It is essential that a trained staff should be readily available if any respirator is being used. Even with the simplest form of artificial respirator (the Bragg-Paul) experience has shown that the best results depend on having within easy access technicians who understand the mechanics of the respirator. Even Lord Nuffield's famous Morris cars require skilled attention and occasional overhaul (no piece of machinery will function indefinitely without it), and Sir Frederick Menzies and others have done a great service in calling attention to the need for ensuring that such skilled supervision should be readily available while artificial respirators are being used.—I am, etc.,

Dublin, Jan. 14. CHRIS. J. MCSWEENEY.

Treatment of Placenta Praevia

SIR,—I have been away from Dublin, and have only just read the letter from Dr. Henry Jellett in the *Journal* of December 24, 1938 (p. 1337). In my previous letter (June 18, p. 1334) I stated that "I was brought up to believe in the value of vaginal plugging for placenta praevia." To the statement in inverted commas Dr. Jellett takes exception. As he says, Sir Arthur McCann accepted vaginal plugging as a possible alternative to podalic version. Dr. Tweedy, in the fourth and fifth editions of *Practical Obstetrics*, says: "If the os were not sufficiently open to permit of two fingers being passed through the internal os, we would plug the vagina, . . ." but he goes

on to state that he had not met such a case, and that he was doubtful if haemorrhage ever does occur when the os is not sufficiently open to admit two fingers. In his reports for 1906, 1908, and 1909 cases of plugging are mentioned. In the seventh edition of *Practical Obstetrics*, which was produced under my jurisdiction, I stated that "plugging the vagina is very seldom indicated for placenta praevia, but in the very remote cases where the cervix is not large enough to admit two fingers and the bleeding is severe the vagina must be plugged. We have had to do this on a few occasions." In the *Manual of Midwifery* by Jellett and Madill (1929, p. 772) it is stated: "In the rare cases in which the cervical canal is not sufficiently dilated to admit two fingers, and in which the haemorrhage is so severe that it is impossible to wait for a short time to allow it to dilate, the firm plugging of the vagina is indicated, as in accidental haemorrhage." This does not coincide with Dr. Jellett's statement in his letter of December 24 to the effect that he has "consistently opposed" the use of plugging. In addition, from the tenth edition of Dr. Jellett's *Midwifery for Nurses* (pp. 320–1) I quote the following: if the os is not sufficiently dilated and "it is necessary to treat the case at once, the vagina must be plugged by the doctor and the plug left in for a few hours. The os will then be sufficiently dilated to allow the performance of version."

The main point that I wanted to bring out in my letter was that much harm is done through the ignorance of practitioners who plug the vagina, not always in an aseptic manner, in cases which would be better left until version or some other form of treatment could be carried out. I am not confusing unavoidable and accidental haemorrhage. In other words, whilst I was brought up, as already stated, to plug the vagina in the rare cases mentioned, it was never my idea to suggest that any of my teachers advised plugging as the treatment *par excellence* for unavoidable haemorrhage.—I am, etc.,

Dublin, Jan. 9 BETHEL SOLOMONS.

Treatment of Sterility

SIR,—It was a great pleasure to read in your issue of January 14 (p. 62) that Dr. Margaret Moore White has joined those who have found salpingographs of greater therapeutic and diagnostic value than the more simple yet more expensive insufflation test. As one who has been doing routine lipiodol salpingographs since 1925, and has a record of over 900 cases, I should like to make two small criticisms of her excellent paper, which may determine even better results.

First, it is stated that no vulsellum is used upon the cervix and that the oval plug is pressed against the cervix. If that is done, the cervix and uterus being mobile, a position of acute ante-version or flexion is assumed, which, apart from the fact that the radiograph may show the uterus standing, so to speak, on its head, may cause acute kinking of the tubes at the cornua, so that they may be thought to be occluded. The best results are obtained by the use of an instrument with a rubber oval plug and a single distal aperture, such as is made by Collin Frères of Paris. The cervix is drawn down by a single vulsellum so as to straighten the uterine canal, the lipiodol is injected, and the first picture taken. The cervix is then pushed up in the line of the vagina, 1 or 2 c.cm. more of the oil is injected, and another radiograph is taken. In this way peritoneal spill can be demonstrated and any possible angulation of the tubes can be guarded against; moreover, if the pictures have been taken at the right time in the menstrual cycle, a control picture the following day is rarely necessary. If the tubes are patent, the husband fully potent, and hypoplasia does not exist, my own therapeutic results from hysterosalpingography alone have been 37 per cent., though it must be admitted that a considerable number of these patients have been given thyroid and sex hormone treatment as well.

My other criticism is on the matter of curettage. It is stated that in a previous forty-one cases this was done as a routine. Surely, unless curettage is being done to determine anovular menstruation just before a period is due, this anachronistic form of sabotage should not to-day be performed. Dilatation and insufflation by all means, but not the curette for straightforward cases of sterility. Perhaps this accounted for the meagre results up to 1936. The results obtained by Dr. Moore White certainly justify the confirmed optimism of those who have for many years proclaimed the virtues of this simple, cheap, and painless technique, which can be done in any radiological department or consulting room.—I am, etc.,

London, W.1, Jan. 14. V. B. GREEN-ARMYTAGE.

Radiotherapy for Metrorrhagia

SIR,—The accidental transposition of a few words in my comment on the radiation treatment of metrorrhagia obscures the meaning of my remarks, as is shown in Dr. James F. Brailsford's criticism (*Journal*, January 14, p. 86). The intention was to deprecate the large radium doses given in order to sterilize the patient because of the fear of the inheritance of abnormalities; it was *not* intended to suggest that the large dosage would cause the inheritance of abnormalities. To emphasize the dangers of overdosage should not detract from the value of correctly applied radiation treatment—either gamma- or *x*-radiation.

With reference to Dr. Brailsford's remarks on the complications mentioned in the Marie Curie Hospital reports, these were all in connexion with the treatment of cancer, and even in cancer cases serious complications occurred in less than 2 per cent. of those treated. Pain persisting for any considerable time occurred in less than 1 per cent. and was not severe in any.—I am, etc.,

Exeter, Jan. 14. E. HURDON.

Circumcision

SIR,—In his criticism of Mr. Kenneth Walker's article on circumcision Dr. D. W. Winnicott (*Journal*, January 14, p. 86) lays great emphasis on the possible harm done by sexual excitement during the changing of dressings. Later he says: "Mr. Walker does not make it clear that in a number of cases a sore meatus develops, with the formation of a scab, and this is most difficult to treat." Dr. Winnicott continues, "This is also commonly met with apart from circumcision, but it is not just a matter of neglect." I assume that he treats such cases with local applications. Even without treatment, repeated irritation and penile stimulation there must certainly be, probably for weeks, with its concomitant focusing of the child's attention.

Evidently Dr. Winnicott has failed to recognize that these trying cases are really ones of congenital meatal stenosis, in which the meatus cracks with each micturition. The mechanism of delayed healing is akin to that found in anal fissure. They all heal within ten to fourteen days after a simple meatotomy, and do not recur. In *every* case for circumcision the meatus must be looked at, and

if it is small it must be enlarged at the time of circumcision. Mr. Kenneth Walker was not writing upon the theme of meatal stenosis, but upon circumcision. The chronic or recurrent meatal ulcer is *not* a complication of circumcision, as Dr. Winnicott asserts, but is the classic sign of a separate and important lesion. It is to be regretted that circumcision is sometimes performed when the essential requirement is a simple meatotomy, but this condition must at least be recognized by those who so ruthlessly condemn the surgeon who relieves phimosis.—I am, etc.,

London, S.W.1, Jan. 14. D. F. ELLISON NASH, F.R.C.S.

SIR,—Far from resenting Dr. Winnicott's letter of criticism in your last issue of my recent article on the technique of circumcision, I am delighted that he has written it. 'It is only after we have examined all the aspects of any problem that we are able to arrive at a right line of action. Of no problem is this truer than of the problem of when to operate and when not to operate. It is for this reason that I welcome Dr. Winnicott's and Dr. Denholm Young's presentation of the psychological aspects of circumcision. Not only was I incompetent to deal with this part of my subject, but I made no attempt to do so. It was my duty as a surgeon to direct attention chiefly to questions of technique, since, simple though the operation of circumcision may be, it is often ill performed. Yet, even writing as a surgeon, I was not unaware of the psychological implications of the operation.

Unfortunately Dr. Winnicott's remarks concerning circumcision apply with equal force to many other surgical procedures. How often does a surgeon embark lightheartedly on an exploratory laparotomy without thinking of the psychological trauma that he is inflicting on a nervous patient! Provided that his incision heals by first intention and that it is of the minimum length, he feels that no harm has been done, even if the operation should ultimately prove to have been unnecessary. Satisfied with the little damage that he has inflicted on his patient's body, he is entirely oblivious of the trauma produced elsewhere. It is therefore of the utmost importance that those of us who are so preoccupied with the body, who think of illness in terms of mechanism and seldom in terms of mind, should hear what our colleagues have to say concerning the psychological implications of our treatment. Several years ago I wrote that if it were not for the fact that the medical curriculum were already overloaded I would urge that a course in psychology should be added to the requirements for a surgical qualification. After having read Dr. Winnicott's remarks on circumcision I realize even more strongly than I did before the advantages that would accrue to surgeons from the addition of a little more psychological insight to their surgical dexterity.—I am, etc.,

London, W.1, Jan. 14. KENNETH WALKER.

SIR,—Some years ago I was able to follow for five years the late results in two cases in which the prepuce was slit up in the middle line for its whole length. One was a boy of 8 and one a man of 23. In neither case was the prepuce thickened at the time of operation. The triangles of skin left had largely disappeared in three months and almost completely in five years. Relief had been complete with no loss of sensibility. It seems to me that such a simple procedure is worthy of attention. It may, of course, be as largely practised as it is in venereal cases with fraenal retention of pus.—I am, etc.,

London, W.1, Jan. 16. G. H. COLT.

SIR,—I shall only refer to the foreskin of the very young infant; attention to it at that period would seem to me to greatly reduce, if not to remove, the need in later life for the operation of circumcision. For years no newborn baby boy has left my care unless the foreskin could be easily and completely drawn over the glans for the purpose of cleansing. In many instances this can be readily achieved by simple manipulations. In others the minute orifice of the prepuce has had to be enlarged. Long ago I discarded circumcision for simple preputiotomy.

This is done in the second week when feeding is well established. No anaesthetic is necesary, no suture or ligature is required. The orifice having been located and slightly stretched and freed from the immediately adjacent glans, using a pair of fine blunt-pointed scissors (Mayo), the prepuce is cut longitudinally, a few degrees to one side of the mid-line of the dorsum—thus avoiding the dorsal artery—until the corona is just over-reached. Several snips are necessary, the prepuce being carefully freed from the glans between each cut, until it can be fully and easily retracted. Oozing from the cut edges is controlled by gentle sustained digital pressure, repeated when necessary, with gauze soaked in weak adrenaline solution. When haemostasis is assured, a narrow strip of gauze soaked in sterilized liquid paraffin is wrapped round the replaced prepuce. The infant is rendered almost oblivious of the occurrence by being allowed to suck a fat raisin wrapped in gauze. One nurse attends to this, while another controls the infant's limbs. Latterly we have found him less concerned by carrying out the procedure midway through a feed. The after-care is simplicity itself. The dressing washes off in the bath next day; a fresh one is applied daily for five to seven days, when healing is complete. The foreskin is retracted a little each day, fully as soon as healing is complete.

All nurses who have cared for infants so dealt with greatly prefer it to the usual operation. The result is all that is required, nothing is removed, not even from the father's pocket, so trifling is the affair, and the boy has nothing to worry about or apologize for in later life.—I am, etc.,

Laugharne, Jan. 15. MILES H. PHILLIPS.

Reinfection in Diphtheria

SIR,—A clinical memorandum by Dr. Philip Science in the *Journal* of December 17, 1938 (p. 1260), mentions a case of reinfection of the same patient with diphtheria. The following brief notes of a case which occurred in 1935 may be interesting.

A boy aged 8, an inmate of an institutional school, was admitted to the isolation hospital on April 11 with every clinical symptom of acute and virulent diphtheria. The throat swab showed the presence of *C. diphtheriae*. In July of the same year this boy was again found to be suffering from every symptom of diphtheria, and had an extensive and typical faucial membrane. The temperature and pulse rate were elevated, and once again the throat swabs were found to be positive. The boy was, in fact, a typical case of acute diphtheria. He was admitted to hospital on July 19 and discharged on September 1. Within a few days of the reappearance of the symptoms in July there were two other cases infected in the institution. Eleven days after his discharge from the hospital—namely, on September 12—for the third time identical symptoms reappeared and the diagnosis was confirmed bacteriologically. On this occasion the infection evidently cleared up rapidly, and he was discharged on September 26. No other cases occurred in the institution this time.

This boy, over a period of six months, had had three definite attacks of diphtheria, each one of an acute nature; in fact, he was very ill indeed with the first and second

attacks. He had infected a number of other children on two occasions, and it is significant that all the time he was in the institution odd cases of diphtheria were occurring, although during his absence in the isolation hospital the school was almost entirely free from infection. In all he probably was the cause of nineteen other cases. In view of these circumstances the patient was not allowed to return to the school after his third period of treatment in the isolation hospital, but was sent direct to his own home in London. Subsequently information was received that a positive swab had again been obtained some time after his return to London. Negative swabs were obtained before his discharge from hospital on every occasion, and it would appear that this boy was not only a persistent carrier but liable to recurrent attacks of the disease in himself.—I am, etc.,

J. E. HAINE,
Hambledon, Jan. 9. Medical Officer of Health.

A New Sign in Rheumatoid Arthritis?

SIR,—It is usually an easy matter to diagnose rheumatoid arthritis, but sometimes the most complete examination leaves an element of uncertainty. In such doubtful instances I have found that a very simple test yields decisive information—namely, the production of pain by moderate lateral compression of the lower ends of radius and ulna. The pressure is exerted by the finger and thumb firmly encircling the patient's wrist, and he will be observed to wince when the examiner's grip is tightened.

The obvious explanation of this "bracelet" test, as I call it, must be that in these patients the inferior radio-ulnar joint is among the first joints to be involved. Pain of the same localization occurs after physical injury of the triangular fibrocartilage of the joint, but I have not found the test positive in any "rheumatic" condition except rheumatoid arthritis. It must be acknowledged that when the whole hand is attacked any special tenderness of the region in question ceases to be distinguished, but in established disease such aid towards diagnosis is not required.—I am, etc.,

London, W.1, Jan. 2. G. LAUGHTON SCOTT.

Fish-liver Oils of High Potency

SIR,—Readers of the *Essays of Elia* will recall that, in the fullness of time, it was revealed to mankind that the flesh of swine might be cooked without the necessity for consuming a whole house to dress it. In rather a similar way Miss Jessie Lindsay and Professor V. H. Mottram's attempts to square a gastronomic circle in their "cod-liver oil cookery" in the *Journal* of January 7 seem a wasted flight of ingenuity in view of the availability nowadays of the newer high-potency liver oils as sources of vitamins A and D. For it does seem that the once indispensable cod-liver oil is being relegated to a place of historical rather than practical importance in nutrition by these newer oils; and the fact that an adequate dosage of the fat-soluble vitamins is mercifully available in a mere two or three drops of one of these oils—an amount that can conveniently be contained in a capsule—surely renders it unnecessary to embark on the culinary adventures which Miss Lindsay and Professor Mottram have described. And when kitchen costs and the expenditure of time and trouble are taken into account, the cost of capsules, etc., of the newer fish oils can hardly be greater than that of cod-liver oil used as the King's College authors recommend.—I am, etc.,

E. ROLAND WILLIAMS,
Clynderwen, Pembs., Jan. 9. M.A., M.R.C.S., L.R.C.P.

Premedication with Avertin

SIR,—An occurrence last week that might have had serious consequences appears to me worthy of description.

An operation for antral drainage was about to be carried out on a child of 8 after premedication with avertin, the dose given being 0.1 gramme per kilo of body weight. He was wheeled into the operating theatre, apparently rather more deeply under the influence of avertin than is usually the case. His conjunctival reflexes were absent and he failed to respond to a pinch. I left him for three minutes before induction with gas, oxygen, and ether, and suddenly, without any stimulus whatever, he began to writhe and roll about. But for the fact that a nurse was at hand and caught him he would have fallen on the floor head first. Subsequent anaesthesia was uneventful and required rather less additional anaesthetic than is usual with this dose of avertin.

Induction with avertin is as a rule so tranquil and insensibility so marked that one is tempted to leave patients unattended on the operating table. Events such as this prove, I think, the inadvisability of such a procedure.—I am, etc.,

Guildford, Jan. 10. A. BARNSLEY, M.D., D.A.

Treatment of Gonorrhoea with Uleron

SIR,—Dr. C. Hamilton Wilkie, in his valuable study of the treatment of gonorrhoea in the male by uleron (*Journal*, January 14, p. 57), gives warning against the uncontrolled use of the drug, and adds: "If allowed to get into the hands of the patient who wishes to treat himself the results might be disastrous...." This prompts me to give an account of just such a case.

A seaman, 28 years old, attended this clinic for gonorrhoea on July 29, 1938; he was given a five-day supply of uleron (thirty tablets). He was seen again on August 5. His urethral discharge had ceased. He was given no more uleron, and was told to return again in three days' time; he did not, but returned instead on December 30, 1938, to be admitted to hospital. He had high-stepping gait and bilateral foot-drop, was barely able to open and close his fingers, and had pain in lower legs, feet, and hands, slight wasting of extensor muscles of lower legs, and marked wasting of interossei muscles of both hands.

Alcoholic excess was denied. He said that one month after leaving this clinic he had noticed a gleet: he had bought 200 tablets of uleron at a chemist's shop in this dockland area, and had taken all of these—two tablets three times a day.

Blood count was as follows: Red cells, 5,100,000 per c.mm.; white cells, 10,600 per c.mm.; polymorphs, 45 per cent.; lymphocytes, 54 per cent.; large mononuclears, 1 per cent.; haemoglobin, 95 per cent. Clinical and laboratory tests reveal now no evidence of gonococcal infection—which is something to the good.

This is the only case of neuritis out of 270 cases I have so far seen treated with uleron.—I am, etc.,

H. M. HANSCHELL,
London, Jan. 14. Medical Officer in Charge, V.D. Clinic, Albert Dock Hospital.

Treatment of "Acute Osteomyelitis"

SIR,—Mr. Alex. Mitchell's article (*Journal*, December 10, 1938, p. 1200) and Mr. G. A. Bagot Walters's letter (January 7, p. 37) on this subject are full of interest. Yet it is not possible to read their communications without a feeling of surprise. They are justly entitled to their own opinions. It is the facts that give rise to disagreement. The first point is the use of the word "osteomyelitis" and the attempt to compare the mortality and effects of treatment of osteomyelitis as if this were a single entity. We might as well try to compare the performance of several motor-cars. It cannot be done without taking

into account all the factors, such as age, horse-power, and price. "Acute osteomyelitis" is the name commonly used to describe a group of conditions in connexion with which the following factors are important: (1) age, (2) resistance, and (3) clinical type.

(1) *Age.*—(*a*) Under 2 years—the infecting organism is nearly always the streptococcus; mortality is about 50 per cent. (*b*) Over 2 years—chiefly staphylococcal; low mortality.

(2) *Resistance.*—This is largely governed by social and general conditions. Thus, the well-to-do have a much lower incidence and a better resistance, while the poorer classes have a much lower "vitality," due to circumstances which cannot be discussed here.

(3) *Clinical Type.*—(*a*) Septicaemia: These patients have a septicaemia with some signs of a local focus but no indications for operation. It is usually our melancholy duty to predict an early death. (*b*) Bone and Soft Tissue Abscess: In these patients the blood culture is negative, though this does not mean it has been negative from the onset. An abscess is present, and treatment is directed towards relieving this. Deaths are rare in this group, even if no operation is carried out; in other words, there is no problem as regards treatment. (*c*) Bone Abscess plus Septicaemia: Either the septicaemia or the local infection may predominate. In this group the patient's life, as well as his future health, depend to a large extent on the treatment given.

In comparing figures we have no right to consider those which do not take into account the above factors. The "septicaemia group" should not simply be labelled "osteomyelitis." I recall cases where no operation was performed and at necropsy it was found that the locally affected part presented a diffuse, brawny, soft-tissue infiltration, but the bone was normal on section. At Salford Royal Hospital in the last three years, during the time I have acted as orthopaedic registrar in Mr. Ollerenshaw's clinic, there have been no deaths from "osteomyelitis" simply because we have had no cases of septicaemia. At Booth Hall Hospital, Manchester, a municipal hospital for children, there has been a considerable mortality because this group has been much in evidence. Of what use, therefore, to compare the two series of cases? The same criticism applies to any series of cases merely grouped together as "osteomyelitis," and Mr. Walters's quoted figures, therefore, are beside the point.

It is a pleasure to read the brief clinical notes of Mr. Mitchell's cases, because it would appear that we now have something that will help us. Nevertheless, his records do not suggest that uleron is likely to fulfil one of the claims he makes for it—namely, to reduce the recurrences. All his cases are far too recent to allow of an opinion on this point, and as his statements show that metastatic foci occurred in three out of the five cases it seems unlikely that the drug has much effect on the blood infection. I regret having to be so critical, but no progress can be made in the attack on this problem unless and until greater precision and stricter classification are used when discussing or comparing series. Just as Salford Royal Hospital has had a run of the less severe types of cases, so may any one surgeon, while his colleagues may have been so unfortunate as to have had to deal with a large proportion of the cases of septicaemia. I suggest, therefore, that we adopt a classification as follows, at least for purposes of statistical comparison.

Group I, under 2 years old.—Streptococcal.

Group II, under 2 years old.—Staphylococcal.

Group IIIa, over 2 years old.—Streptococcal, local focus only.

Group IIIb, over 2 years old.—Streptococcal, local focus, and septicaemia.

Group IVa, over 2 years old.—Staphylococcal, local focus only.

Group IVb, over 2 years old.—Staphylococcal, local focus, and septicaemia.

The cases of septicaemia without a true local focus should be strictly excluded from cases of "osteomyelitis" and classified with other septicaemias. It has been suggested that I am mistaken in supposing that the septicaemias are included. But experience in several hospitals in two countries leads me to believe that they are not excluded, and that they continue to be labelled with the diagnosis with which they are sent into hospital. It would be of value to hear the facts from surgeons themselves.—I am, etc.,

Manchester, Jan. 13. W. SAYLE CREER.

"Should Medical Charity Begin at Home?"

SIR,—My attention has been drawn to a letter in your issue of January 14 (p. 89) from Dr. Henry Robinson, chairman of the B.M.A. Charities Committee. Will you permit me to point out that the statement in that letter to the effect that part of the Lord Baldwin Fund will be spent in establishing foreign medical competitors "in our midst" is wholly without foundation. The fund is concerned with the financing of organizations whose job it is to arrange for hospitality or training of refugees in this country pending re-emigration to countries of settlement. It is a matter of deep regret that a person holding a responsible position as chairman of the British Medical Association Charities Committee should without informing himself of the facts publish a statement which is not only without foundation but is calculated to harm a charitable organization which is, in the opinion of a very large number of responsible persons, attempting to fulfil a national duty—namely, to ensure that this country plays its fair part in dealing with the terrible destitution and human misery represented by the refugee problem.—I am, etc.,

P. VOS,
Joint Honorary Secretary, Lord Baldwin Fund for Refugees.

32, Essex Street, Strand, W.C.2,
Jan. 16.

SIR,—I am in full sympathy with Dr. Henry Robinson: "charity should begin at home." But till now charity did mean an appeal for a certain cause, leaving the choice of gift to the benefactor. It is therefore with painful surprise that I read in his letter a condemnation of Lord Baldwin's appeal. It is a new and highly undesirable deviation from the well-established and dignified practice—not to cast any aspersion on other charitable appeals.—I am, etc.,

N. PINES,
Local Hon. Secretary, Royal Medical Benevolent Fund.

London, E.1, Jan. 16.

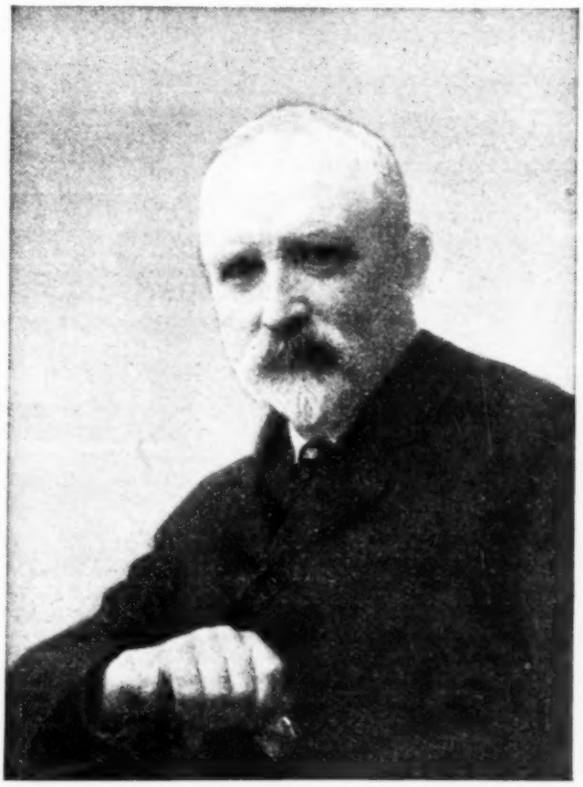
The President of the Board of Trade has appointed the following to be a committee to prepare a revised edition of the *Ship Captain's Medical Guide* and to recommend any alterations in the Board of Trade medical scales for merchant vessels necessitated by the revision of the *Guide*: Mr. E. H. Watts (chairman), Mr. R. R. Bennett, B.Sc., Mr. Percival P. Cole, F.R.C.S., Colonel J. C. Kennedy, M.D., Dr. M. T. Morgan, Mr. F. H. Norman, Captain David Smith, and Dr. Ernest Tinker. The committee is prepared to consider written evidence or to hear oral evidence. It may later request various bodies and individuals to give evidence. Any correspondence in connexion with the work of the committee should be addressed to its secretary, Mr. R. B. Tippetts, Mercantile Marine Department, Board of Trade, Great George Street, London, S.W.1.

Obituary

RUTHERFORD MORISON, D.C.L., LL.D., F.R.C.S.,

Emeritus Professor of Surgery, Durham University; Consulting Surgeon, Royal Victoria Infirmary, Newcastle-upon-Tyne

James Rutherford Morison was born at Hutton Henry, Co. Durham, on October 10, 1853, and died at a nursing home in Newcastle-upon-Tyne on January 9, 1939. After graduating in Edinburgh in 1874 Morison was house-surgeon at the Royal Infirmary, Edinburgh, to Patrick Heron Watson, a surgeon who was bitterly opposed to Joseph Lister and "his newfangled methods." Both were fine surgeons; one practised the old-time methods, the other the new ones. Morison spent as much time as was possible, and as much as he dare without being detected by his chief, in Lister's ward; he used to relate that the feeling on the part of his chief was so great that had his "disloyalty" been discovered he knew it would have meant instant dismissal.



After some years spent in general practice in Hartlepool he came to Newcastle to embark on the career of a consulting surgeon. In coming to this decision he was largely influenced by the late Sir David Drummond. He had perhaps an unhappy knack of arousing opposition, but of this he was sublimely unconscious, for he could not credit other people having hard feelings which he did not possess. He had had persistent opposition in gaining a place on the honorary staff of the Hartlepools Hospital at Hartlepool. Eventually he was appointed as honorary physician; but that did not deter Morison's surgical aspirations, for he used to relate with a smile that he did 90 per cent. of all the operations even though he was a "physician." Life was not always easy for him: it took many years of uphill work before he attained recognition and success, but his merit and determination won him through. His appointments to the Royal Infirmary and Royal Victoria Infirmary, Newcastle, were honorary assistant surgeon in 1888, honorary surgeon in 1897, and honorary consulting surgeon in 1913; he was therefore associated with that institution for over fifty years. He was also emeritus professor of surgery at Durham University, honorary surgeon to the Cripples' Home, Gosforth, and consulting surgeon to the Newcastle Dental Hospital and to the War Pensions Hospital.

Morison's views on surgery generally were twenty years ahead of his time. He showed marked originality in his work and was intensely interested in all research relating to surgery, and there are few surgeons who have made more valuable contributions to the art. Further, he introduced many new operations that are still practised. He pointed out, with pardonable pride, that his written views on gall-stone surgery still held good at the present time. His reputation was international, and he made Newcastle famous on account of his writings, teaching, and personality, so that surgeons visiting this country felt compelled to visit his clinic. Morison was so efficient that he was a specialist in most branches of surgery. He had a flair for diagnosis, and the following case impressed the writer as one of his many outstanding cases.

A young girl, aged about 18, of great physical charms, for some months had complained of pain in her back, and she refused to walk because of this pain: no abnormal physical signs were ever detected: she had seen many physicians and surgeons, both in London and in the provinces, who all made a diagnosis of neurosis (it was prior to the *x*-ray era). Whilst examining the case the patient unknowingly passed flatus, which Morison detected. He argued that no pretty girl would voluntarily do this during an examination. A diagnosis of tuberculous vertebra was made, and subsequent events confirmed the diagnosis.

He expected and obtained a high standard of efficiency in those working for him. Though for efficiency's sake he was sometimes a hard taskmaster he was warmly appreciative of good service, and was loved by all who worked for him, whether it was assistant, house-surgeon, nurse, or theatre porter. All were regarded as the lucky ones in life who were privileged to serve him. He was generosity itself and incapable of a mean action. When in practice his pocket was assailable to any doctor in financial trouble. As a teacher Morison was without parallel. He regarded this as his most important function in life. His sense of duty in this respect was such that no inducement could tempt him away from hospital on a teaching day and so break faith with his class. He taught in principles, and his book, *Introduction to Surgery*, will perpetuate his teaching. He always had large classes, and he forced home his valuable lessons most successfully. His old students will visualize him when teaching as a handsome man, standing erect with hand outstretched, with piercing eye, and an unspoken intimation that he would stand no nonsense. He was devoted to his work and was a model to all surgeons for his integrity, his sense of duty, and his care of his patients. He was punctual, and whilst on the active staff attended at the Infirmary almost daily, spending the whole morning in his wards or operating theatre.

Morison was always a student. Up to his death he was an omnivorous reader of surgical literature and knew of every new development of the art. Even up to the close of his days as an active surgeon he spent a considerable time in the post-mortem room, for he was an

ardent pathologist, and was ready to discuss any problem that might arise.

Morison's record of service in the great war is a fine one. The active honorary staff of the Royal Victoria Infirmary, Newcastle, became seriously depleted by absence on war service, so Morison returned to full duty. This was in addition to his other surgical activities as surgeon to the Northumberland War Hospital at Gosforth, where he did outstanding service. It was during this period that he introduced "bipp" to the profession as a prophylaxis against, and a cure for, sepsis, whereby a septic wound could be sutured up without drainage and heal under a single dressing. This proved a revelation and a revolution. It is probably the only important new surgical measure introduced during the great war which has survived and is still in use. He accepted an invitation from the Government to proceed to France to demonstrate the new method of treatment. It grieved him, however, that bipp did not always have a fair trial and was consequently sometimes adversely reported upon. Morison's difficulty was that the surgeons would *not* carry out the treatment as detailed. It was established that the many variations tried inevitably led to disappointing results.

He had good health, and this may be partly attributed to the daily exercise he took, for before the great war a considerable part of his consultative work was done with the help of a bicycle. His old students are spread all over the world. He kept in touch with many of them, and a letter to him would always evoke a stimulating reply. Morison was a warm supporter of the British Medical Association. He was elected a member in 1880. He was honorary secretary, Section of Surgery, 1893 (Newcastle-upon-Tyne); vice-president, Section of Surgery, 1898 (Edinburgh); president, Section of Surgery, 1921 (Newcastle-upon-Tyne); and president of the North of England Branch in 1910. The general practitioners in the North of England have reason to revere Morison's memory, for it was due to his interest in medico-political work, through the British Medical Association, that he upheld their rights in the "Battle of the Clubs," which ended in victory for the doctors, much to their financial advantage. On his retirement from the honorary staff in 1913 his old house-surgeons showed their appreciation of him by erecting a medallion portrait in the operating theatre of the Infirmary where he had worked. In 1927 the medical profession in the North of England subscribed for a testimonial, when his portrait in oils and a cheque were handed to him. At his request the portrait was handed over to the Medical School, and is now hanging in King's College, Newcastle-upon-Tyne. Also at Morison's wish, the cheque was applied in founding the Rutherford Morison Travelling Scholarship of the triennial value of £180. In 1933 the house committee of the Royal Victoria Infirmary named a ward "the Rutherford Morison Ward." Edinburgh University honoured him with the honorary degree of LL.D. in 1919, while Durham conferred the D.C.L. in the same year. He was offered the diploma of Fellow of the American College of Surgeons, but felt he could not undertake the fatigue of the journey to the U.S.A., so it was never conferred, but he warmly appreciated their desire to honour him. His admirers, and particularly his old pupils, were disappointed that a man of such outstanding ability and personality, and whose services were so valuable, was not honoured by his country.

In 1923 he had a serious operation, after which he retired to live at St. Boswells-on-Tweed. A man of great physical strength, he enjoyed golf, fishing, and curling. In 1929 he took up farming, which was a source of great pleasure to him: he farmed scientifically, and was latterly honorary secretary of the local branch of the Farmers' Union. On his eightieth birthday thirteen of his old house-surgeons went on an unannounced pilgrimage to St. Boswells-on-Tweed and made a presentation. Several had travelled a long distance to participate in the function.

For more than thirty years I was in almost constant touch with Morison either in person or by correspondence. The following are extracts from a few of his letters. With the exception of the first two they were written from St. Boswells.

27/5/16 (*Newcastle-upon-Tyne*).—You will be glad to hear that I have accomplished the greatest thing for surgery in this war. I have discovered an antidote to true sepsis, and we are now about to leave dirty wounds undressed for a whole month. Think of what this means for compound fractures. *Programme:* Open up and clean the wound; mop it out with spirit, then fill it with paste and cover with dressing. *Paste:* Iodoform, 2 parts; bismuth subnitrate, 1 part; paraffin, q.s. to make a paste.

2/8/16 (*Newcastle-upon-Tyne*).—Compound fractures have done with a dressing which has been left on for two to four weeks, and several of them have united in less than six. It took twenty-five years to make surgeons believe that I could get large aseptic wounds to heal without drainage under a single dressing. My hope is that the same time will not be taken in getting the same belief accepted for septic ones, but I fear it. There is another thing I fear, and it is that we may discover drawbacks; I am honestly looking out for them, but so far without success.

10/5/18.—The weather was bad for fishing. Cold east winds and bright sun are two of the worst blights a fisher can have, and in addition I dare not wade in the very cold water, so that I got very few fish.

8/10/28.—(*Describing and criticizing an operation where he had seen a well-known Continental surgeon get into serious difficulties when operating through too small an incision*): "The main difficulty is, as you know, too short an incision. Surgeons have not yet fully recognized the value of a free exposure as I have."

8/10/28.—I am well but every year surgical activities (? worry me), sometimes more than is comfortable. Then I have to repeat to myself a formula, "Every dog has his day," and "You ought to be grateful for your extension of leave," and by Couéing these in I gain comfort and relief.

10/4/29.—It was ———'s farm experience that aroused in me a desire, which simmered, to get a farm for myself. We get possession in May.

2/10/29.—All my harvest is well in; very good crops, so I am hoping they may make up for our bad sales of cattle, which are too cheap to pay just now.

15/10/33 (*After the pilgrimage to St. Boswells-on-Tweed on his eightieth birthday*).—I cannot tell how much I appreciated your visit with my old house-surgeons. The visit must be a very singular mark of appreciation, and the highest mark of appreciation and the highest compliment that could be paid to any man. The memory of it will remain to the end of my life.

And so passes a personality brimful of character, a far-seeing surgeon of international repute, a warm-hearted philosopher, the most generous and loyal of friends, and one whose teaching and methods of teaching will stand the test of all time. He gave nothing but his best, and that was good. It is given to few men in life to achieve so much as Rutherford Morison did. He was buried at St. Boswells-on-Tweed on January 11, in sight of the Eildon Hills which he loved. At his request the funeral was private. Simultaneously a memorial service was held in the chapel of the Royal Victoria Infirmary, Newcastle. Despite very short notice, so large was the attendance of old colleagues, medical practitioners, nurses, and old patients that the service was relayed to the Infirmary library to enable a large overflow congregation to partici-

pate in the tribute to his memory. After the service a number availed themselves of the opportunity of viewing the medallion portrait in his old operating theatre.

R. J. WILLAN.

Professor G. Grey Turner writes:

A great many Durham medical graduates scattered throughout the world will have reason to regret the passing of Rutherford Morison, whom so many of us remember as an inspiring teacher and great practical surgeon with a most original and stimulating mind. For a great many years no single person ever did so much to maintain and to enhance the fine surgical traditions of the Newcastle Royal Infirmary. In Edinburgh Morison had been dresser to Lister and house-surgeon to Patrick Heron Watson. For both of these men he maintained an intense admiration, and there is no doubt that they had a great influence on his life and work. During the Hartlepool days he had also gone for a period of postgraduate study to Vienna, and there he saw something of the work of the great Billroth, and it was he who undoubtedly fired Morison with his enthusiasm for pathology. With such a background Morison was well prepared for his work as a teacher, and he very soon made himself felt in the Newcastle school. All his life he concentrated on general principles, and in that way he laid the groundwork for the knowledge of many pupils who, like the writer, will ever be grateful to him for such an "introduction to surgery." Years afterwards he published a book with that title, but though the manual is most useful and is largely read by medical students to-day it does not really give a sufficient idea of the scope of the Morisonian teaching. But he was also a great practical surgeon: a beautiful and fearless operator and intensely interested in the after-progress of his patients. In the late 'eighties and the early 'nineties he was doing much pioneer work in many fields, and his name will always be associated with the introduction of the operation of omentopexy, which was devised in collaboration with his colleague and life-time friend, the late Sir David Drummond of Newcastle. The inception of that operation was a great tribute to the pathological foundation of surgical progress. Morison was most enthusiastic and was always trying out new methods, and very often he must have been the first surgeon in this country to employ new plans which originated in other parts of the world. He it was, for instance, who purchased the second of the sigmoidoscopes ever to be used in this country, and back in the early 'nineties he used spinal anaesthesia, and so it was with many other methods often looked upon to-day as very recent innovations. He carried out posterior mediastinal oesophagotomy in 1904, and in 1908 a formal lobectomy for bronchiectasis.

He could not help being a teacher, and though his methods were often dictatorial they were undoubtedly of great value at a certain period of the lives of the band of enthusiastic young people who passed through his hands. He was a great worker, and throughout his long life contributed many valuable and useful papers to surgical literature. Not long after his retirement he published two large volumes of his collected papers, which ought to be referred to by those who are inclined to think that certain methods may perhaps be new. Morison never forgot his early experience in general practice, and was always most punctilious in guarding the interest of the practitioners who called him in. In this he made no distinction between private and hospital patients, and must have written thousands of letters to doctors in his own characteristic hand. At one time, in the early 'nineties, he took an active part in medical politics in Northumberland, and was very helpful in securing better conditions for the colliery doctors, whose interests were always safe in his hands. He was always an ardent supporter of the British Medical Association.

Rutherford Morison deserves to be remembered not only as a great teacher and surgeon but as a maker of surgeons, and at least three of his old assistants are now the holders of important surgical chairs, and a great many of his pupils are engaged in surgery as hospital surgeons and in other capacities. In Newcastle his name will long be remembered, and for many a day his influence on that school of surgery will be felt.

Dr. Alfred Cox writes:

The death of Rutherford Morison will be felt as a personal loss by every man who ever came under the spell of that great surgeon and extraordinary personality. I remember well his first appearance as an assistant surgeon at the old Infirmary at Newcastle. He came with a reputation already made as a surgeon at Hartlepool, where he had been in general practice, and he infused a new spirit into the medical school. He was one of the handsomest men I have ever known, had an eye like an eagle, did not suffer fools gladly, and was a born teacher. The confidence he inspired by his mere presence was felt by every patient who came into his hands, and he was indeed "a very present help in time of trouble" to those who, like myself when in practice, called him in. There are others who can speak with much more authority on his gifts and career as a surgeon. I want to say something of the man who in a very busy life never forgot that he had been a general practitioner and was always ready to help his professional brethren. When in the early years of this century the colliery surgeons of Northumberland began a struggle to improve their condition, which at that time looked hopeless, Morison helped in a way that was open to no other man. His reputation as a surgeon and as a man among the miners and the mine owners was such that his help was invaluable and led to a success beyond our hopes. Not only did he subscribe handsomely to the funds of the campaign, but he was always ready to meet the miners and put the doctors' case. In medico-political matters in the North in those pioneer days he was a tower of strength.

I have not seen him since the B.M.A. Annual Meeting in Edinburgh in 1927. On the Sunday we had our usual excursion, which took us to Tweedside. I had not remembered that Morison was living at St. Boswells, and I got a great thrill when as our cars were passing through that place I saw the well-remembered figure standing in the middle of the road stopping the cars and asking which one I was in! This to an old student of his was as good as an accolade from the Sovereign. I had letters from him once or twice a year. In his last he said: "My interests now are farming and surgery—as regards farming, when I started I felt sure it *must* pay, now I know it doesn't." In another letter he said:

"The war knocked me clean out, as I was organizing all day and every day and often at night too, from the time I was 60 to 70; then I was done and did not expect to be any more use. Now by recognizing my limitations I thoroughly enjoy life and live on a small farm of 126 acres. But though I am now a farmer I still take the greatest interest in surgery. I spent last winter [this was in 1936] in rewriting, along with Saint of Capetown, my book, *An Introduction to Surgery*. I thought a third edition would emphasize the message I have always delivered—that surgery could be made more interesting

to juniors if it was taught on less conventional and more scientific lines. I wish I could believe what you say about my teaching capacity, because I have always taught and believed that a really great teacher is the greatest gift of God."

I speak not only for myself but for old students of his whom I have met in various parts of the world when I say that Morison was the greatest gift the Newcastle School of Medicine ever had.

[The photograph reproduced is by Elliott and Fry, Ltd.]

ROBERT REID, L.R.C.P. AND S., J.P.

Dr. Robert Reid died at his residence in Whiteabbey, Belfast, on December 22, 1938, at the age of 71. The district in which he spent so much of his lifetime has thereby lost one of its outstanding figures and the inhabitants have lost a sincere friend. Robert Reid was educated at the Belfast Royal Academy, studied medicine at the Queen's College, Belfast, and qualified L.R.C.P. and S. at Edinburgh in 1891. For two years he was an assistant in London, and in 1893 returned to the district of his birth, where he began practice for himself. A man of sound judgment and with more than the average medical skill he soon attracted a wide and valuable practice. To one and all he was more than the healing doctor; his wisdom and guidance were available in many capacities to those whom he numbered among his patients and to a wide social circle. He acted as physician to the Throne Convalescent Hospitals besides being assistant coroner (and from 1931 coroner) for the Belfast District of County Antrim. He took an active part in the administrative work of local authorities and was a useful member of the Belfast Rural District Council and of the Lisburn and Belfast Rural Regional Education Committee. For a time, too, he was a Poor Law guardian. He was one of the oldest Fellows of the Ulster Medical Society and had always been an interested member of the British Medical Association, which he joined in 1895. He was president of the Ulster Branch of the Association in 1922, and he served on the Irish Committee from 1926 to 1928. Church affairs also attracted his interest, and he held various offices during his busy lifetime.

Robert Reid (writes a colleague) was one who held the medical profession in high regard, and its ethical principles were one of the ideals to which he adhered strongly throughout his life in every phase of his activity; the health interest of his patients was always his main concern, be they poor or rich, and to all he gave of the best of his professional knowledge. He was a wise counsellor, and many of his colleagues looked to him for advice and guidance. A man of definite views, he was never narrow-minded, but gave to every problem sound consideration before forming his judgment. To all he was a valuable friend, and many will miss him. His wife was his happy companion and always his friend, and to her and her two daughters (one of whom is the wife of Dr. Lawrence Ross) our deepest sympathy goes out.

Dr. GEORGE EDWARD FISHER, who died at his home at Skipton, Yorks, on January 8 at the age of 81, had practised in that neighbourhood for well over fifty years. A native of Portarlington, Ireland, he was the son of a doctor, and numbered the late Lord Carson among his schoolfellows. He studied medicine at the Ledwich School, Dublin, and qualified in 1879 as L.R.C.P. and S.I., and L.M. of the Coombe Hospital. After holding the post of senior resident at the Meath Hospital he travelled as a ship surgeon, and then worked as assistant to a doctor in Skipton; after a short time at Rotherham he returned to Skipton, and remained there for the rest of his life. Dr. Fisher was the senior member of the honorary medical staff of Skipton and District Hospital, medical officer to Skipton Girls' High School since its foundation, and held other local appointments. During the whole of his residence in the town he was associated with Skipton Parish Church, which he served as warden and sidesman, and he was for many years president of the local cricket club. He was a good shot, a keen angler, and played lawn tennis until the age of 70. He was a member of the British Medical Association for fifty-four years.

Dr. ALFRED O. LEE, who combined the chairs of Modern Languages and of the History of Medicine at the University of Michigan, Ann Arbor, died on December 25, 1938, aged 65.

The following well-known foreign medical men have recently died: Dr. PIERRE PARISOT, honorary professor at the Nancy Faculty of Medicine and officer of the Legion of Honour; Dr. ETIENNE LEENHARDT, professor of children's diseases at the Montpellier Faculty of Medicine; Dr. RAOUL BENSAUDE, honorary physician to the Paris hospitals and officer of the Legion of Honour; Professor CARL MENSE of Cassel, an eminent tropical hygienist, founder of the *Archiv für Schiffs- und Tropenhygiene*, and editor of a handbook on tropical diseases, aged 78; Geheimrat FERDINAND HUEPPE, eminent alike as bacteriologist, hygienist, biologist, and authority on physical exercise, and former professor of hygiene in the German University of Prague, aged 86; Dr. HANS NEUMAYER, emeritus professor of oto-rhino-laryngology at Murfich, aged 74; Dr. JUAN MANDINAVITA of Madrid, an authority on diseases of the stomach and intestines; Dr. SAHACHIRO HATA, professor of microbiology at the University of Keio, a former collaborator of Ehrlich, aged 61; Dr. POL N. CORYLLOS, an eminent thoracic surgeon of Connell University, New York; Dr. E. B. MCKINLEY, dean and professor of bacteriology at the George Washington University School of Medicine, Washington, D.C., and author of *Filterable Virus Rickettsia Diseases* (1929) and *A Geography of Disease* (1935); and Lieutenant-Colonel ALPHONSE LEMMERS, O.B.E., of Ostend, editor of the *Courrier Médico-pharmaceutique*.

Corrigendum.—In the obituary notice of the late Mr. E. B. Waggett in our issue of January 14 (page 91, first column, line 3) it should have been stated that he first experienced painful leg symptoms in *Salonika*, not, as printed, during the Gallipoli campaign.

The Services

DEATHS IN THE SERVICES

Lieutenant-Colonel JOHN VALENTINE MACDONALD, M.C., I.M.S. (ret.), died at Aberdeen on December 24, 1938, aged 53. He was born on February 14, 1885, and was educated at Edinburgh University, where he graduated M.B., Ch.B. in 1908. He entered the Indian Medical Service as lieutenant on January 29, 1910, became lieutenant-colonel after twenty years' service, and retired on account of ill-health on July 9, 1931. He served in the great war, when he was thrice mentioned in dispatches in the *London Gazette* of February 8, 1917, February 13, 1917, and January 20, 1920. He received the Military Cross on February 15, 1917, and a brevet majority on June 3, 1919.

Major HENRY ALFRED CUMMINS, C.M.G., R.A.M.C. (ret.), died at Chelsea on December 31, 1938, aged 74. He was born at Cork on March 8, 1864, and was educated at Queen's College, Cork, graduating M.D., M.Ch., M.A.O. in the Royal University of Ireland in 1885, and as D.Sc. in 1887. He entered the Army as surgeon on July 12, 1886, became major after twelve years' service, and retired on July 28, 1906. He served in the Sikkim campaign on the North-East Frontier of India in 1888, receiving the frontier medal with a clasp; in the Ashanti expedition of 1895–6, receiving the star; and in the South African War in 1900–1, when he took part in the advance on Kimberley, in operations in the Orange Free State, including the Battle of Paardeberg, and

in the Transvaal, was mentioned in dispatches in the *London Gazette* of April 16, 1901, and received the Queen's medal with three clasps and the C.M.G. He was recalled from the reserve of officers to the active list on August 6, 1914, and served in the war of 1914–18. After his retirement from the Army in 1906 he was appointed professor of botany and agriculture at Queen's College, Cork, and held that post for many years. He was a Fellow of the Royal Linnean Society and made many contributions on his special subject, botany, to various scientific journals and proceedings. He married Ethel Percy, daughter of Robert Hall of Cork, and leaves a son and four daughters.

Universities and Colleges

UNIVERSITY OF LONDON

A course of lectures and clinical instruction on mental deficiency and allied conditions, arranged by the University Extension and Tutorial Classes Council in co-operation with the Central Association for Mental Welfare, will be given from Monday, March 20, to Saturday, April 1. It will be based on the requirements for the University of London Post-graduate Diploma in Psychological Medicine, and is intended for medical practitioners, more especially those who are engaged as school medical officers, certifying officers to local authorities under the Mental Deficiency Acts, or as medical officers of institutions, or who are otherwise definitely concerned with the care of subnormal or abnormal persons. Part II of the course, devoted to the problems connected with the retarded and difficult child, formerly held immediately after Part I, will be held in the autumn. All lectures will be delivered at the Senate House of the University, W.C., unless otherwise stated on the students' time-tables, and will be given from 10 to 12.30 each morning. The clinical work will be arranged for each afternoon, except Saturday. Detailed time-tables will be sent to each person proposing to attend the course not later than March 11, and forms of application should be filled in and returned as soon as possible. The University will grant certificates of attendance to those students who attend regularly taking both theoretical and practical work. The registration fee, to be paid at the time of application, is 10s. 6d., and the fee for Part I of the course is £5 15s. 6d. All communications should be addressed to Miss Evelyn Fox, C.B.E., c/o University Extension Department, Senate House, University of London, W.C.1.

UNIVERSITY OF GLASGOW

The Secretary of State for Scotland announces that the office of Regius Professor of Surgery in the University of Glasgow becomes vacant on October 1 on the expiry of office of Professor Archibald Young. Applications for the Chair should reach the Private Secretary, Scottish Office, Whitehall, S.W.1, by March 15.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council was held on January 12, with the president, Mr. Hugh Lett, in the chair.

It was reported that at the recent Primary Examination for the Fellowship held in Lahore 6 out of 31 candidates were approved, and that at the examination held in London 83 out of 236 candidates were approved.

The Hallett Prize, granted in connexion with the Primary Examination for the Fellowship, was awarded to Alfred McKee Large of the University of Toronto.

Professor Graham Simpson was appointed as the Bradshaw Lecturer for 1939. Professor R. E. Kelly was reappointed as the representative of the College on the Court of the University of Liverpool. Dr. Gilbert Orme was appointed to represent the College on the Council of the Queen's Institute of District Nursing.

The Council accepted with very grateful thanks the gift by Sir Buckston Browne of a clock, clock case, and two vases (Derbyshire Spar and Ormolu Garniture).

The posts at the following hospitals were recognized under paragraphs 21 and 23 of the regulations for the Fellowship: Victoria Hospital, Blackpool (Surgical Unit No. 1); Lancaster Royal Infirmary (first and second house-surgeons, recognition confirmed); Prince of Wales Hospital, Plymouth, Devonport Section (senior house-surgeon, to July 31, 1942).

Diplomas

Diplomas of Fellowship were granted to John Keith Cunninghame of Otago and Mohamed Fatin of Cairo.

A Diploma of Membership was granted to Peter Duncan Swinstead of St. Bartholomew's Hospital.

Diplomas in Psychological Medicine were granted, jointly with the Royal College of Physicians of London, to the following candidates:

J. T. D. Clark, H. N. Davy, N. De, A. K. Deb, P. F. Fletcher, A. R. Garner, R. Gibson, Y. H. Guinena, Daisy G. Iliff, N. Langdon-Down, J. MacW. MacGregor, R. D. Newton, C. Ponnambalam, J. J. Ryan, W. T. H. Wales.

Diplomas in Laryngology and Otology were granted, jointly with the Royal College of Physicians of London, to the following candidates:

K. H. Bazirgan, A. H. R. Champion, H. G. Earnshaw, O. Fawzy, J. R. Hutcheon, D. T. Martin, N. M. Mody, G. A. Moulden, T. R. Pahwa, H. V. Suryanarayan Rao.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on January 9, with Dr. John Henderson, president, in the chair, Mohamed Emara, M.B., Ch.B., was admitted a Fellow of the Faculty.

Medical News

Professor J. D. Bernal, F.R.S., will deliver an address on "The Structure of Proteins" at the Royal Institution, 21, Albemarle Street, W., on Friday, January 27, at 9 p.m.

A clinical meeting of the Society of Radiotherapists of Great Britain and Ireland will be held at the Medical Society of London, 11, Chandos Street, W., to-day (Friday, January 20) at 5 p.m., when the subject for discussion will be "Carcinoma of the Larynx, Lesions in the Arytenoids, Aryepiglottic Folds, and Pyriform Fossa." Professor Pilcher, Mr. Stebbing, Dr. Dobbie, Mr. Phillips, and Mr. Green will speak.

A meeting of the Association of Industrial Medical Officers will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., on Friday, January 27. At 5.30 p.m. there will be a business meeting, followed, at 6 p.m., by a discussion on "The Eyes of the Industrial Worker," to be opened by Mr. Frederick Ridley and Dr. F. H. C. Beards. A film on the prevention of industrial eye injuries will be shown by Mr. J. Minton. On Saturday, January 28, at 10 a.m., a visit will be paid to the Albert Dock Hospital, Customs House, E., when Mr. H. E. Griffiths will demonstrate.

The annual meeting of the Association of Public Vaccinators will be held at the office of the Medical Defence Union, 49, Bedford Square, W.C.1, on January 27, at 3.30 p.m. It is important for as many public vaccinators as possible to attend, because Mr. F. A. Briggs, the organizing secretary, after thirty-seven and a half years' service, finds it necessary to resign. The question of the future of the association is on the agenda for consideration.

The fourth international congress of comparative pathology will be held in Rome in May, 1939, and will consist of three sections devoted respectively to human, veterinary, and plant pathology. The subjects for discussion will be ultra-viruses, heredity in pathology, the function of combined antigens, and retrogressive processes in plants. The proceedings will open with a reception on May 14 at Hotel Ambasciatori, and will end on May 20. The membership subscription of 250 lire covers the cost of all excursions and entertainments during the congress. The Compagnia Italiana Turismo (C.I.T.), 77, Regent Street, London, W.1, have been appointed travel agents, and will supply full information. Special rates for the journey are available. Members' subscriptions (in English money £2 12s. 6d.) should be sent to the honorary secretary of the British National Committee, Dr. Fred Bullock, 9, Red Lion Square, W.C.1, before March 25. Four additional excursions to places of interest in Italy will be provided at the end of the congress at reduced fares.

A quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on January 4, with Mr. V. Warren Low, president, in the chair. The sum of £2,216 was voted for the half-yearly grants to the sixty-two widows and four orphans in receipt of relief. Since the last court two members had died, and four new members were elected at this court. Of the two deaths one was an orphan, a cripple, who came on to the funds in 1890 at the age of 15, at the same time as her mother and three sisters. At the age of 16 she was placed on a special fund and had received £2,320 in grants from the society up to the time of her death. £330 was distributed at Christmas, representing a present of £5 each to the widows and orphans. Two fresh applications for relief were received from widows of members, and a grant of £60 per annum was voted to each. Relief is only granted to the widows and orphans of deceased members. Membership is open to any registered medical man residing at the time of his election within a twenty-mile radius of Charing Cross. Full particulars and application forms for membership may be obtained from the secretary at the offices of the society, 11, Chandos Street, Cavendish Square, W.1.

Owing to the diminution in the number of admissions, the Rheumatism Supervisory Centre at the Paddington Green Children's Hospital, London, which was opened in November, 1926, under the directorship of Dr. Reginald Miller, has now been closed to new cases.

On January 16 Sir Samuel Brighouse of Ormskirk completed fifty-five years as coroner for South-West Lancashire. During that period he has conducted 24,690 inquests. He has been a practising solicitor for over sixty-seven years and is in his ninetieth year.

Thirty professors of different Spanish universities gathered together in Barcelona, where they are continuing their teaching and research work, have addressed a cable dated January 8 to the universities and educational centres of the world, denouncing the third bombing of Barcelona University. The signatories include A. Trias, professor of surgery, Jose Boche and Elilio Mira, professors of medicine, Manuel Rivas Cherif and Manuel Marquez, professors of ophthalmology, and J. Jeulofue, professor of pharmacy.

The French *Journal Officiel* for January 1, 1938, publishes a decree governing the appointment of senior medical officers to mental hospitals.

La Presse Médicale for January 7 contains a twenty-four-page supplement giving particulars for 1939 of postgraduate courses to be held under the auspices of the Paris Faculty of Medicine. It will be noted that next summer some of this postgraduate teaching will be in English.

The Japanese Government has allocated about a million and a half yen for combating the high incidence of venereal disease among their soldiers returning from China.

The recent deaths of ten children from diphtheria in suburban Paris have given rise to a French Parliamentary question as to the reasons why the law of June, 1938, rendering diphtheria inoculation compulsory, has not yet been put into force. The French Minister of Public Health has replied that a draft of his executive measures relative to this law is at present being studied by the Academy of Medicine.

EPIDEMIOLOGICAL NOTES

Infectious Diseases in England and Wales during December, 1938

In the four weeks ending December 31, 1938, 6,787 cases of scarlet fever, 5,205 cases of diphtheria, 3,715 cases of primary pneumonia, and 118 cases of enteric fever were notified in England and Wales. The notifications of scarlet fever, diphtheria, primary pneumonia, and enteric fever were 73 per cent., 99 per cent., 87 per cent., and 117 per cent. of the expected numbers (deduced from the median values of the corresponding weeks of the years 1929–1937).

Acute Poliomyelitis

There was a rise in the notifications of acute poliomyelitis in England and Wales during the week—24, compared with 16—but in London only one case was reported (4 in the previous week). The counties chiefly affected were: Southampton 3 (Winchester 2, Southampton 1); Surrey 3 (Dorking and Horley 2, Kingston 1); Essex 2 (Chelmsford 2); Gloucestershire 2 (Bristol 2); Lancashire 2 (Leigh and Ramsbottom 1 each); Yorkshire West Riding 2 (Aireborough and Harrogate 1 each). The case in London occurred in Lambeth.

Typhoid Fever

During the week notifications of typhoid fever in England and Wales fell from 34 to 30, which is about the average figure for the last three months. Of the 30 cases 8 were notified in West Ham and 3 in East Ham, where a total of 46 cases has been reported in the last four weeks with 6 deaths. Apart from 4 cases notified in Hull and 4 in London (1 each in Hampstead, Islington, St. Marylebone, and St. Pancras) the remaining cases appeared to be sporadic in time and distribution.

Small-pox

On January 10 a sailor belonging to the crew of s.s. *Cressado*, which arrived at Liverpool on December 27, 1938, was reported to be suffering from small-pox. As the onset of the illness was on January 5 it is probable that he was infected at Oporto, which the ship left on December 23. During December there were in this port 13 cases of small-pox and 2 deaths; during the same period in Lisbon 10 cases and no deaths were reported.

Influenza

It was observed in these columns last week that deaths from influenza in England and Wales were double those in the previous week; in the present week an increase of more than 50 per cent. over last week's number has been recorded, while notifications of influenzal pneumonia (including the primary form) were 1,668, compared with 1,131, and in London 169, compared with 122, in the previous week. Large increases, approximately double, were also noted in Scotland, Eire, and Northern Ireland. Reports have come to hand of outbreaks of influenza, which is not a notifiable disease, from widely distributed areas in England and Wales. It has not yet been ascertained whether a majority or even any of the cases so reported are cases of true influenza. It is probable that most of them are cases of severe common cold or febrile catarrh, as they do not show the characteristic symptomatology or sequelae of influenza.

Typhus

Morocco.—The epidemic of typhus which prevailed in Morocco during the winter and spring of 1938 was more serious than any during the previous eleven years; a total of 7,420 cases was reported, compared with 4,132, the next highest number, in 1928. The epidemic began in the Marrakesh district in December, 1937, when cases rose during the month from 34 to 781. The epidemic reached its peak in March, when there were 1,545 cases in the whole country, of which 607 occurred in the region of Marrakesh and 483 in that of Chaouia. From April to July the numbers reported monthly were successively 1,474, 1,264, 752, and 207. During the last quarter of the year 335 cases were recorded, including 110 in the Chaouia region and 51 in the Marrakesh region.

Egypt.—In Egypt the number of cases recorded in 1938 was higher than in either of the two previous years. The chief foci were in Lower Egypt and in the provinces of Qena and Giza in Upper Egypt.

Algeria.—In Algeria the disease was less prevalent than in 1937, when it was present in epidemic form, but the number recorded exceeded that for the year 1936.

A decline in the incidence of typhus in 1938, as compared with 1937, was also observed in Tunisia, Palestine, and Turkey.

No. 1.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended January 7, 1939.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns (125 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1939					1938 (Corresponding Week)					1930-8 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	22	7	5		—	37	5	12	—	3		
Deaths		1	1				1	1				
Diphtheria	1,180	110	190	45	26	1,584	149	234	85	43	1,255	180
Deaths	23	2	8	2	2	49	8	10	5	—		
Dysentery	27	13	13		—	256	58	126		4		
Deaths				—	—				—	—		
Encephalitis lethargica, acute	6	—	1		—	3	—	1		—		
Deaths		—					2					
Enteric (typhoid and paratyphoid) fever	30	4	3	8	5	24	10	5	10	2	23	
Deaths	1	—	—	—	—	8	1	—	—	—		
Erysipelas			63	3	9			98	5	6		
Deaths		—					1					
Infective enteritis or diarrhoea under 2 years												
Deaths	43	13	4	7	4	64	19	19	4	4		
Measles		27	9		1			911		594		
Deaths	3	—	—	—	—	36	5	14	3	11		
Ophthalmia neonatorum	72	7	12		—	112	4	32		—		
Deaths												
Pneumonia, influenzal*	1,668	169	37	29	35	1,624	155	26	3	15	1,690	263
Deaths (from influenza)	144	3	25	7	5	77	7	11	—	3		
Pneumonia, primary			383	23				377	8			
Deaths		20		30	22		28		19	29		
Polio-encephalitis, acute	—	—				2	1					
Deaths		—										
Poliomyelitis, acute	24	1	—		—	5	—	—	—	—		
Deaths		3										
Puerperal fever†	3	1	3	4	2	2	2	13	3	2		
Deaths		1‡					—					
Puerperal pyrexia	125	9	12		—	190	26	30		7		
Deaths												
Relapsing fever	—	—			—	—	—			—		
Deaths												
Scarlet fever	1,394	114	301	43	73	2,139	141	518	104	94	2,144	229
Deaths	4	—	—	1	—	5	1	2	—	—		
Small-pox	—	—	—		—	—	—	—		—		
Deaths	—	—		—	—		—		—	—		
Typhus fever	—	—		—	—	—	—	—		—		
Deaths				—	—				—	—		
Whooping-cough	206		235		24			24		10		
Deaths	14	6	17	—	5	20	4	1	1	1		
Deaths (0-1 year)	444	76	84	47	42	514	93	106	27	45		
Infant mortality rate (per 1,000 live births)	67	62				86	77					
Deaths (excluding stillbirths)	6,495	1,233	859	298	220	6,279	1,274	1,076	215	206		
Annual death rate (per 1,000 persons living)	16.0	15.7	17.5	20.0	19.5	15.5	16.0	20.1	14.5	18.3		
Live births	6,479	1,097	888	296	257	7,137	1,297	1,006	330	248		
Annual rate per 1,000 persons living	15.9	14.0	18.1	19.9	22.8	17.6	16.3	20.6	22.3	22.0		
Stillbirths	264	43	22			275	52					
Rate per 1,000 total births (including stillborn)	39	38				37	39					

* Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

† After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

‡ Death from puerperal sepsis.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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The TELEGRAPHIC ADDRESSES are

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SECRETARY, *Medisecra Westcent, London.*

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QUERIES AND ANSWERS

Diet for Wheat-sensitiveness

"A. M." writes: Could any reader inform me where to obtain barley bread, barley flour, soya bean flour and biscuits for an unfortunate patient who is sensitive to wheat?

Income Tax

Replacement of Car

"R. S." bought an F car in 1935 for £176. In 1937 he sold it for £70 and bought an S car (of lower horse-power) for £211. What is he entitled to charge as an expense of replacement?

*** His out-of-pocket expenditure was £211 − £70 = £141. But of this amount part—that is, £211 − £176 = £35—was expended in improving his car equipment. He is therefore entitled to deduct as cost of replacement only £141 − £35; that is, £106. (This assumes that the cost of an F car of similar power and condition to that purchased in 1935 was the same at the date when the S car was bought in 1937; if it had increased to, say, £*x*, then the amount allowable is £*x* − £70.) The principle involved is that no deduction is due for improvements as they are chargeable to capital and not to revenue account.

LETTERS, NOTES, ETC.

A Newspaper's Apology to Lord Horder

The Managing Director of Associated Newspapers Limited writes under date January 16: Your attention may have been drawn to an article which appeared in the *Daily Mail* of Thursday last referring to Lord Horder, and stating that he had been assisting behind the scenes in the filming of Dr. Cronin's book *The Citadel*. This statement, Lord Horder informed us, was entirely unfounded. In consequence a paragraph of correction was published in to-day's *Daily Mail*, in which we expressed our apologies to Lord Horder for the mistake that had arisen.

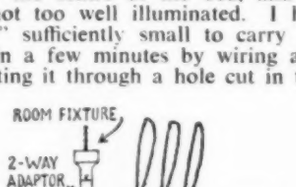
*** The paragraph of apology in the *Daily Mail* of January 16 contains the following statement by Lord Horder: "I had nothing whatever to do with the film in an advisory or any other capacity. I have never even read the book nor seen the film at any stage in its preparation or since, and am unable to understand how the article came to be written."

Decline of Breast-feeding

Dr. J. B. HOGG (Koorda, Western Australia) writes: The basic reason for the declining birth rate, the decline of breast-feeding, and the increasing number of neurotic mothers is the neglect of the art of baby-rearing. Young mothers are encouraged by official actions and public opinion to submit to the guidance of nurses and doctors well grounded in science but "debarred by sex or sterility" from any understanding of the art, and whose attitude to the qualified teachers of the art (the grannies) is one of hostility and contempt. If art and science must be contrasted, then for me art is the greater. Meals prepared by a good cook are more tempting than those of an equally good dietitian; the work of a great artist means more than correct art. (An apology will be sent to any dissenter from the above proposition on proof that he habitually wears one of the outfits of clothing scientifically designed for the British adult.) Comparing figures we find that when art (personified in granny) directed baby welfare the race increased in numbers; under science (the clinics) it is headed for extinction. But there is no need for this division and opposition. By training suitable grannies in baby welfare and letting them train their teachers a sound combination of art and science should be possible, and the rearing of babies should be made more interesting to the normal woman than bridge or golf is. I am told this is Utopian and impossible: I firmly believe that if it fails nothing can succeed. If it is ever tried one practical point must be watched—the grannies must have separate classes. In the country of the blind a person with theories of colour vision is an idiot and a nuisance. One granny training in a class of childless women is quickly taught to shut up or get out.

Floodlit Obstetrics

Dr. E. M. R. FRAZER (Burton-on-Trent) writes: Many cottages previously lit by oil or candles are now fitted with electric light. Fitters, hardly being able to appreciate the best site for light in obstetrics, have in most cases hung the light over the centre of the bed, and as a result the perineum is not too well illuminated. I have found that a "floodlight" sufficiently small to carry in the bag can be made up in a few minutes by wiring a bakelite lamp-holder and fitting it through a hole cut in the bottom of a



tin can. The shade-holder ring fixes the lamp-holder firmly. The tin should be deep enough to accommodate a small (20-watt) lamp, and the lid can be replaced to protect the lamp when not in use. Two or three yards only of rubber flex are required, the other end being attached to a bayonet-cap adapter. To connect up the light the room lamp is removed and a two-way adapter is fitted to the lamp-holder. The room lamp is fitted into one leg and the floodlight adapter to the other leg. Both room and perineum are then illuminated. A square tin is best as it is less likely to roll, or a large spring clip, or even a wooden clothes peg, can be fitted to the tin to anchor the lamp to the bedclothes. An alternative to the tin is a glass jar with a metal screw top, although these are rather heavier than a tin. The sketch makes the idea clear, and the total cost need not exceed 1s. 8d.

Malignant Tertian Parasite: Correction

Lieutenant-Colonel J. A. SINTON (Horton Hospital, Epsom) writes: An article by Sir Rickard Christophers and myself on the correct name of the malignant tertian malaria parasite appeared in the *Journal* of December 3, 1938 (p. 1130). Although the correct specific name has been emphasized in the text, a regrettable error has crept into the table headed "(A) Nomenclature *de jure*," in the third column of which the name "*Plasmodium quartanum* (Celli & Sanfelice, 1891)" should read "*Plasmodium malariae* (Gr. & Fel., 1890)."

Corrigendum

In Drs. OWEN, HEWER, and WHITAKER'S article on apical bronchogenic carcinoma (December 31, 1938, p. 1360), an error occurred in the description of Case I (paragraph two, line one) and also of Case II (paragraph two, line six). The word "myopic" should in each instance read "contracted."